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AUTHOR Walker, Elaine M.; Hochwald, Eve; Kopacsi, Rosemarie; Cai, Yang; Ramaswami, Soundaram

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ABSTRACT

In 1991, the Newark School District (New Jersey), through the partnership of the Newark Teachers' Union and Montclair State University, established the first professional development school (PDS) in the city. Used primarily as a center for retooling elementary grade teachers in grades 6, 7, and 8, the school has come to play a pivotal role in the school district's reshaping of current staff development programs. Since 1991, 205 teachers have participated in PDS training. This report presents the results from the first formal evaluation of the program. In general, findings suggest the promising potential of the PDS model through its impact on teacher attitudes and behaviors as well as student performance. However, the degree of success of the PDS is significantly attenuated by several problems: (1) the fragmentation of policies as they relate to wider attempts to introduce change within the school system; (2) an insufficiency in the diversity and flexibility of the model to accommodate the different needs of teachers and schools; and (3) a follow-up plan that is not sufficiently thorough to confront the problems teachers encounter once they return to their home schools. At present, these problems hinder the ability of the PDS model to generate fundamental and sustaining changes in the caliber of the district's teaching force. An appendix contains scales and subscales from the PDS teacher surveys. (Contains 10 tables, 3 figures, and 26 references.) (Author/SLD)

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An Evaluation of the Professional Development School in Newark:

The Impact of Training on Teacher Attitudes, Teacher Behaviors and Student Outcomes

Newark Board of Education
Office of Planning, Evaluation and Testing
2 Cedar Street
Newark, NJ 07102

Authors

Elaine M. Walker, Ph.d

Eve Hochwald, Ph.d

Rosemarie Kopacsi, Ph.d

Yang Cai, MA

Soundaram Ramaswami, Ph.D

Office of Planning, Evaluation & Testing

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Executive Summary

Professional Development Schools are assuming greater centrality in local school districts' efforts to improve on the competencies of their teaching force. In 1991, the Newark School District, through a partnership forged with the Newark Teachers' Union and Montclair State University, established the first professional development school in the city. Used primarily as a center for retooling elementary grade teachers in grades 6, 7 and 8, the school has come to play a pivotal role in the District's reshaping of current staff development programs.

This report presents the results from the first formal evaluation of the program. The general tenure of the findings contained in the various chapters is suggestive of the model's promising potential impact on teacher attitudes and behaviors as well as student performance. However, the degree of success that is likely to be realized through the PDS, is significantly attenuated by the existence of several problems. These problems are symptomatic of (i) a fragmentation of policies as they relate to wider attempts to introduce change within the system and schools, (ii) an insufficiency in the diversity and flexibility of the model to accommodate the different needs of teachers and schools, and (iii) a follow-up plan that is not sufficiently thorough to confront the problems which teachers encounter once they return to their home schools.

If the District wishes to enlarge the capacity of its teaching force to meet the challenges of more rigorous instructional and assessment frameworks then it is imperative that these problems be redressed. Presently, the existence of these problems hinder the possibilities for the PDS model to generate any fundamental and sustaining changes in the calibre of the District's teaching force.

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CHAPTER ONE

Introduction

Professional development schools have emerged as one of the major linchpins in the reform of teacher education and professional development programs. Influenced largely by the Carnegie and Holmes reports, professional development schools have become sites where professional knowledge regarding the teaching-learning process is constructed and shared collaboratively by schools and colleges. Both in the preparation of novice teachers, as well as in the retooling of existing teachers, the concept of the professional development school has come to play a pivotal role in improving the teaching-learning process. The impetus to explore promising alternatives for enhancing the professionalization of teachers has been influenced by a confluence of forces, not least of which, is the inability of traditional approaches toward staff development to provide any long term and evidentiary proof of success at the system level. When this is further placed against the backdrop of the various reform efforts in education, such as the development of (i) more challenging academic standards, (ii) more rigorous curriculum frameworks and (iii) more difficult assessment frameworks for measuring students' knowledge, the pressure faced by local school districts to have a teaching force with the competence to meet these new challenges is great.

Previous efforts at imparting content and pedagogy through professional development activities have been extensively criticized throughout the literature. Recent publications of comparative data on the performance of students in the US with those in Europe and Japan have also resulted in major interrogations of all aspects of schooling in the US, including a close scrutiny of the efficacy of the teaching force. The Holmes Report written by 100 deans of faculty of education underscore some of the inherent problems in existing models of staff development and induction. The report highlights the didactic and non-conceptual approaches which are embodied in these activities, the disjuncture between theory and practice, and the absence of reflection in the construction of knowledge on what constitutes effective practices. Similar conclusions are also arrived at from studies focusing specifically on professional development activities within public school systems. For example, the fragmentation of staff

development activities, the marginal relationships which tend to exist between staff development activities and wider attempts at systemic and school reform efforts and the lack of inclusiveness and non-constructivist approach towards teaching, have all been identified as inhibiting the success of locally initiated staff development programs within public school settings.

Proponents of the concept of the professional development school (PDS) clearly view this model as a plausible alternative to existing models. The model seems promising in its ability to correct some of the problems as they relate both to the induction process for novice teachers, as well as efforts directed at renewing the skills of experienced teachers. For instance, the focus on collaboration provides a bridge between theory and practice, and affords practitioners and theoreticians alike an opportunity to jointly participate in the evolution of the profession. The constructivist approach implied by the model also furnishes teachers with the opportunity to become active participants in the construction of knowledge.

Since, the Holmes Report, one has seen a dramatic increase in the numbers of PDS partnerships involving schools and universities. Unfortunately, questions as to their relative effectiveness still remain largely unanswered. The burgeoning evidence on the efficacy of the PDS model as an induction tool is promising (Stallings, 1991). Where the model has been used for professional renewal however, the research evidence is less substantive. An exception is to be found in the case of the Schenley PDS center in Pittsburgh. The research on this effort indicates that the PDS model was successful not only in its direct impact on teacher behavior and attitudes but also in its impact on student achievement (Wallace, et. al, 1990)

The limited research on PDS renewal models has meant that there is no agreed upon guiding framework for evaluating these models of staff development. Thus, issues as to what constitutes a successful PDS model has yet to be definitively resolved. It is possible however, that the extant literature in the general field of staff development may provide us with certain useful operational frameworks for examining the PDS. To this end, there are numerous authors whose works may be drawn upon. Corcorans' recent extensive review of the literature highlights some of the key principles behind successful staff development programs. First, these efforts tend to stimulate and support site-based initiatives. Second, the support for teacher initiatives, as well as school or district initiatives, are likely to be incorporated. Third, successful staff development models are founded on the knowledge about teaching. Fourth, they

provide teachers with the opportunities to be active learners. Fifth, these models offer teachers intellectual, social, and emotional engagement with ideas, materials and colleagues. Sixth, respect for teachers as professionals and as adult learners is demonstrated. Seven, sufficient time, intensity, and continuity for teachers to master new strategies and content, as well as to integrate them into their practice is provided. Finally, successful staff development models tend to be accessible and inclusive.

Based on these principles one sees that building an effective staff development model involves a multidimensional process, speaking to both the content and quality of the effort. One can conjecture that if one is successful in generating such a model, then, one is likely to find that the content and quality of a staff development effort will both directly and in their interaction impact on student learning outcomes. Given the complexity of this process, evaluation strategies for staff development initiatives must perforce be premised on a multifaceted approach. According to Guskey and Sparks (1991), a sound evaluation design must at least examine the impact of staff development training on changes in participants knowledge and behavior, changes in the organization, ie, the culture and climate of the school, and changes in student outcomes. The present evaluation attempts to apply this paradigm in the first formal evaluation of Newark's Professional Development School. Using an evaluation paradigm which is multipronged in focus, the evaluation examines the effect of this major staff development thrust on teacher practices and attitudes, and on student outcomes. The central questions addressed in the evaluation pivot around the degree to which the PDS model has successfully impacted on teachers abilities to become more effective purveyors of knowledge, and the factors which have assisted or impeded this process.

The convergence of several factors resulted in the establishment of a professional development school in 1991 in the Newark School District. First, the District adopted a posture of greater commitment towards the development of its teaching force. Although, the District had instituted mandated opportunities for professional development at all schools, it was clear that the time allocated for such activities was not sufficient, and thus a need for expanded professional development opportunities was critical. Second, the adoption of more rigorous curriculum standards in mathematics, and the implementation of a more stringent state student assessment examination signified, that, if the District was to build the professional capacity among its teaching staff to meet these demands, then a qualitatively different approach towards

staff development had to be assumed. Modeled after the Schenley School in Pittsburgh, Newark's PDS school represented a collaboration between local district administrative personnel, the teacher's union, and Montclair State University. The PDS school was framed within the context of affording teachers in the upper elementary grades an opportunity to improve their skills in content knowledge, pedagogical strategies, and classroom management behaviors. Radically departing from previous didactic approaches toward staff development, the PDS school promotes a constructivist approach in which teachers are given the opportunity to become active participants in the construction of new knowledge.

The PDS school pre-dates the District's development of it's new five year strategic plan. Consequently, to a large extent, the training that has occurred represents more an attempt to deal with the perceived inadequacies of the teaching faculty, especially as they relate to its ability to meet the more rigorous assessment standards being established by the State, than, to any overall attempt to reform the schools or the District. Although at the time of this evaluation there was the absence of an explicit link between the PDS experience and any broader attempt at change within schools, the hope was that through the PDS program, effectuated changes in the classroom would lead to an improvement in student achievement in those schools, from which teachers attended. (This is the central assumption explored by this evaluation.) With the District's adoption of a new strategic plan it is envisioned that the PDS training activities will be more closely linked with the attempts to introduce systemic reform within the system. The present evaluation can be seen as serving two purposes. First, it will provide some insight of how successful this ambitious staff development effort has been in renewing the skills of teachers. Second, and more importantly, the findings can lead to better informed professional development policies at what is a critical juncture in the District's history.

The evaluation sample in this study consists of three cohorts of teachers who received professional retraining at the PDS school in 1992, 1993, and 1994. In examining the impact of the training on teacher attitudes, behaviors, and student outcomes, a number of strategies were employed. First, the impact of the training on teaching practices and classroom behaviors was determined through a case study of nine teachers who completed the PDS training almost a year prior to the data collection. These case studies were based on the scripting of three classroom lessons over a six week period. Second, shifts in teacher attitudes on several issues related to teachers' sense of self efficacy, feelings about their profession, school climate and school culture

were measured through a pre and posttest questionnaire instrument administered before teachers' PDS training and upon completion. Third, the effect on student outcomes was assessed by a control group design in which the achievement of students taught by teachers who underwent the PDS training was comparatively examined against the performance of students taught by Non-PDS teachers. The results from these analyses are placed against the backdrop of a historical overview of the implementation of the PDS school, it's pedagogical orientation, and philosophical underpinnings. The Report is thus schematically organized into the following chapters. Chapter 2 presents the historical insight into the establishment of the school, Chapter 3 is devoted to an in-depth study of nine teachers who received training in 1992-1993. Teacher attitudes before the PDS training and after training are examined in Chapter 4. Chapter 5 looks at the effects on student outcomes and finally Chapter 6 presents concluding observations and recommendations.

CHAPTER TWO

Issues Related to Program Philosophy, Pedagogy, Curriculum and Training

Background

The Professional Development School was established by the Newark Board of Education in 1991 to provide staff development and training to sixth, seventh, and eighth grade teachers. The school opened in September of that school year at the Harold Wilson Elementary school which up until then had been an elementary school specifically designed to meet the needs of special education students. In order to accommodate the PDS center, the Harold Wilson School was transformed into a middle school, drawing on the upper elementary population of neighboring schools. Four times each year, cohorts of 20 teachers take part in an intensive five-week hands-on program which emphasizes child development, effective teaching practices, cooperative learning, and content teaching clinics in reading, writing and mathematics. The goal of the program is to provide teachers with instructionally and professionally enriching experiences which will ultimately result in positive outcomes for student learning in the District. While visiting teachers attend classes at the PDS Center, exchange teachers take over their classes at their home schools. These teachers are drawn from a pool of teachers whose explicit function is to assume the instructional responsibility for teachers who are receiving training at the PDS center. Upon return to their home schools, visiting teachers are provided with follow-up support. Since 1991, 205 teachers have participated in the PDS training.

There are several staff positions associated with the PDS. The principal is primarily responsible for overseeing, training, supervising, and evaluating all school and PDS related activities. The vice-principal directs and supervises school activities. Coordinators provide training, conduct clinics, and coordinate PDS and school activities. Resident teachers teach the "Whole Language" curriculum in reading, writing, and language arts; they also work with Visiting Teachers by modeling lessons and participating in clinics. Finally, exchange teachers teach in the home schools of the visiting teachers for a five-week teaching cycle.

As part of the evaluation of the program, information was gathered from both the PDS

Principal and Coordinator, assisting the principal about its history, philosophy, and organization. Their responses provided two complementary perspectives on the school's activities, and are summarized here under the following headings: Historical Data, Philosophical and Pedagogical Issues, Implementation Issues, and Training.

Historical Data

The PDS was founded in 1991 to serve several purposes:

1. *To improve student achievement by improving teachers' skills.*
2. *To respond to teachers' expressed need for training in reading, language arts and math by providing them with the latest teaching strategies, techniques and approaches.*
3. *To relieve stress and revitalize teachers with low morale.*
4. *Develop professionalism and collegiaty among its teachers and other educators.*

As can be gleaned from the above, the impetus behind the development of the PDS school lay in a concern over student achievement, and the need to offer professionally renewing experiences for teachers facing problems related to morale and stress. In determining the content focus of the training, a need assessment process was established. This process was predicated on the desire to (i) understand teacher evaluation of previous staff development efforts and to give teachers a voice in determining the content of the training, and (ii), comprehend the patterns of learning deficiencies exhibited by students in the District. With respect to the first issue, the needs assessment process involved analyzing and reviewing teacher evaluation of the Instructional Theory Into Practice training program, teacher interviews, end of year reports, logs written by ITIP coaches, as well as holding meetings with the Newark Teacher's Union officials and their members to discuss the needs of their constituents. In establishing student learning deficiencies, the second set of information reviewed in the assessment process was student performance on various measures of achievement.

A planning committee consisting of representatives from the Newark Board of Education, the Newark Teachers' Union (NTU), and Montclair State University was established. Members were added to the committee as the need arose. The Planning Committee addressed several issues including those related to the development and establishment of the PDS. In formulating a plan for the school's development, the committee visited several sites including districts in

Cincinnati; Toledo, Ohio; and Pittsburgh, PA. Primarily, the committee was interested in observing models where teachers evaluated their peers. The committee also reviewed current research related to professional development and teacher effectiveness and engaged in discussions on such issues as learning theories, professionalism, collegiality, mentoring, and peer observation.

Philosophical and Pedagogical Issues

The philosophical orientation undergriding the PDS staff development effort is founded on two assumptions, one, that teachers can make more of a difference, particularly as professionals who hold themselves responsible for student outcomes; and two, that staff development is an "on-going process of "best practice" and should be "teacher-driven, and student-oriented."

Among the various models, standards and approaches to teaching and learning that are incorporated in the PDS training are: Instructional Theory Into Practice (ITIP); the National Council of Teachers of Mathematics Standards; critical thinking/creative thinking; the whole language approach; Piaget's theory of child development; and cooperative learning. Several factors seemed to have influenced the choice of individual models. For example, ITIP was chosen because it was felt that the District had already established a foundation for this approach through previous staff development. Some of the other models were used in the Schenley Project and were proven to be successful. In some instances, based on the research evidence, best practices techniques which were effective in improving the learning process, but which were not commonly used in the district, were included as part of the training program. However, the over-riding concern was selecting models of teaching and learning which would enable teachers to be more successful in delivering the curriculum, especially in the areas of mathematics and reading.

The staff development associated with the PDS was sensitive to the problems of student achievement in the District in several ways. First, the concentration in math and reading is seen as reflecting the problem areas of student achievement in the sixth, seventh, and eighth grades. Second, the training at the PDS school is felt to be aligned with the District's curriculum focus. Third, given the needs in the district, and since research indicates that cooperative learning is associated with student achievement, and that teachers proficient in both instructional skills and

in content have better student outcomes, cooperative learning became an area greatly stressed in the training.

The focus of the PDS training is seen to be both similar and dissimilar to previous staff development efforts in the District. The fundamental differences as noted by the Principal and coordinator is the clinical experiences which it provides teachers and the opportunity to discuss moral implications of teaching and learning which is also provided for teachers. Through these clinical experiences teachers are given an opportunity to observe, teach and receive feedback. Previous staff development efforts were viewed to be weak in this area. Although in many ways the focus, for example on Instructional Theory into Practice, learning styles and cooperative learning had been incorporated previously into various staff development efforts, these were carried out with varying degrees of intensity and consistency.

Overall, the shifts in teacher behaviors that were expected to be seen are greater teacher and student motivation and enthusiasm, more time on task; more students engaged in learning; more content knowledge and effective instructional practices; and greater utilization of effective ways to handle adolescents' needs. Further, it was expected that teachers would demonstrate a greater predilection towards collaborative instruction. This should be evident not only in closer collaborations between teachers but also in the restructuring of lessons to promote cooperative learning among pupils.

Program administrators noted that each content area has a specific conceptual approach. In math, the approach is that teachers must first know how to do math before they can teach it; they must concentrate on the process before the outcome; and they must make connections to everyday life including the use of manipulatives to master concepts. Reading also has a process approach, involving whole language, strategies, multiple modalities, and the use of writing as a vehicle for reading comprehension. The approach to science includes integrating reading and math with an emphasis on labs and hands-on experience.

Implementation Issues

As with any new project, a number of problems surfaced during the initial start-up phase of the PDS. These included problems with professionalism and collegiality, merging the staff of the PDS with that of Harold Wilson School, establishing the boundaries of professional exchange and growth between the faculties of Harold Wilson and Montclair State, and aligning

the PDS curriculum to facilitate interdisciplinary planning and teaching. These problems were resolved through on-the-job-training, meetings, Saturday and after-school sessions, establishing clear expectations for each year, and making administrative changes. Involvement of teachers and staff in the evaluation process also helped to create the atmosphere that was needed to successfully implement the program.

In order to successfully implement this new model of staff development, several levels of support had to be established. The oversight committee provided one structure through which ongoing dialogue about the unfolding PDS model was facilitated. The committee met once a week for one and one-half years, and was perceived to be effective, committed and responsive. The support which flowed from the central office to the school included a commitment of funds, the granting of decision making powers to PDS administrators, quick responses from several central office departments and wide latitudes given to make decisions about staffing patterns. In addition to these supports, both the Superintendent and his Chief of Staff were perceived to demonstrate a strong commitment to the PDS school.

As discussed previously, the PDS model represents a partnership between the District, its local teacher's union and institutions of higher learning. The collaboratives that have developed between the District and Montclair State University and the John Goodlad's Center for School Renewal have revolved around certain roles. Montclair State University has provided training in critical thinking, assistance in upgrading the curriculum in the area of art, music, home economics and shop, offered graduate level courses on site as well as made available assistance from its faculty. This collaboration has received partial funding from the District.

The John Goodlad Center for School Renewal has provided exposure to theories and research about teacher education, as well as offered the PDS staff an opportunity to examine school renewal efforts elsewhere in the country. Other collaborating institutions include Cities In School, the New Jersey State Department of Education, the Division of Higher Education, the New Jersey Arts Center, the College of Medicine and Dentistry, the New Jersey Institute of Technology, and Best Friends. It is worth pointing out that the services and support from some of these collaboratives were directed at the student population of the PDS school and not at the training component. Since the primary focus initially was to create an exemplary center for teachers to improve their crafts.

It is clear from the responses gleaned from the implementation questionnaire that these collaboratives exhibited both strengths and weakness. The commitment and resources that they brought, their roles in aiding the clarification process of the PDS goals, and expectations were all viewed as crucial to the school's evolution. However, there were inherent tensions between what was perceived as a lack of respect shown by some institutions of higher learning for local district personnel.

Overview of Training Program

In the first three years, over two hundred sixth, seventh, and eighth grade teachers received professional training from the PDS -- 40 in 1991-92; 75 in 1992-93; and 90 in 1993-94. Participants generally come from the ten schools selected annually by the Assistant Executive Superintendent (AES); the prerequisite being that the teachers have received previous training in ITIP. All sixth, seventh, and eighth grade teachers who teach reading, language arts, or math are eligible. It has been suggested that the selection criteria be changed to volunteer participation. It is felt that such a change would improve attendance and professionalism.

Once participant teachers have been identified, some preliminary activities take place. The Resident Teacher meets with the Visiting Teacher in her home school in order to develop a plan for the Visiting Teacher's PDS experience. The Exchange Teacher also meets with, and spends a week observing the Visiting Teacher. The Resident Teacher then makes a second visit, meeting also with the principal and the NTU representative to discuss a professional plan.

Besides the discussions that take place between administrators, the Exchange Teachers, and the Visiting Teachers during the week that the Exchange Teacher spends in the Visiting Teacher's home school, other transitional supports are provided to the Visiting Teacher's classrooms during their PDS training. The school supervisor participates in a workshop and visits with the teacher twice during the experience. Also, the Exchange Teacher and Visiting Teachers meet to exchange ideas.

The PDS day is six hours from 8:30 am to 2:30 pm. A typical day consists of four or five periods, with a thirty-minute lunch break. Over the course of the program, subjects include Reading (nine sessions), Cooperative Learning (seven sessions), Stress (five sessions), Child Development (four periods), Effective Instructional Techniques (four periods), Journal Writing

(four sessions), Critical Thinking (four sessions), Classroom Management (two sessions), Cognitive Development (one sessions), Science (one session), seminars on professionalism and moral dimension (6 sessions) and the equivalent of three sessions is devoted to content. Nineteen sessions -- the largest number -- are devoted to Teaching Clinics, including two overviews, six clinics, and eleven pre- and post conferences.

In the opinion of the program administrators, the visiting teachers come to the program exhibiting various needs and expressing several different areas of concerns. Lack of support from their home schools, parents and students seems to be one of their major concerns. Not surprisingly, some visiting teachers exhibit low motivation and a belief that they cannot make a difference. In some instances visiting teachers exhibit limited prior knowledge and prerequisite skills, particularly in the area of academic and critical thinking proficiencies. Also, some teachers demonstrate limited knowledge of effective writing practices especially active learning, transfer theory, and motivation theory. In mathematics, some teachers display an unfamiliarity with some algebraic and geometrical concepts and with the use of manipulatives and calculators at the middle school grades. Teachers also seemed to be unfamiliar with cooperative learning and adolescent development according to the program administrators. Feedback provided by teachers after the PDS experience indicate that several of these needs have been successfully met during the training.

In spite of teachers' positive perceptions of their PDS training, the program administrators felt that there is much more that needs to be done. Comments provided by them suggest that in the area of student achievement they need much more follow-through, and higher performance expectations. There is also the feeling that accountability at the schools needs to be strengthened. Both PDS administrators suggested some changes for the training. They recommended that administrators be more accountable for leadership. Since administrators are unfamiliar with the program, teachers tend to give them what they want -- no discipline problems, and no noise. Modifications that would allow for individual attention for teachers who have extreme difficulty with content and/or classroom management are also needed.

Neither administrator expressed satisfaction with the level of support the teachers get once they return to their home schools, based on feedback received from teachers. Also, the Coaches have indicated that in some cases teachers' motivation is reduced because of school

leadership. Other factors in the home schools that mitigate against the teachers' ability to implement training include: lack of resources, such as time, supplies, materials, and equipment; poor expectations; chronic absenteeism; poor follow-up by coaches due to excessive cancellations; peer pressure; and administrative expectations, such as desks in rows and no talking in classrooms.

Both PDS administrators thought that the District could deal with these factors by having higher expectations and more accountability for school administrators. In particular, improving on administrators knowledge base about the program and sensitivity to teacher needs seem critical. Greater alignment of curriculum, policies, and projects; higher expectations of parents are also crucial issues which need addressing if the program is to be effective for teachers.

CHAPTER THREE

Teacher Implementation of the PDS Experience

Introduction

This chapter focuses on changes in teacher behaviors that may be partially attributed to their PDS training. Using the program administrators' expectations as a guiding framework, the chapter examines the teaching styles, and behaviors demonstrated by nine teachers who received formal training from the PDS. The shifts in teacher behaviors which the Professional Development School proposes to realize include high teacher and student motivation and enthusiasm for learning, more students actively engaged in learning, a more collaborative approach to instruction with lessons restructured for cooperative learning, more content knowledge and effective instructional practices, and more effective use of instructional aides such as math manipulatives, calculators, trade books, graphic organizers, and overhead projectors. Since the evaluation focus of this chapter is to assess the effectiveness of the PDS training, classroom observation methods were applied to identify behavioral indicators of effective teaching practices which classroom teachers trained at the Professional Development School were incorporating and implementing in their classrooms.

The objective is to examine the impact of teacher training with a case study sample of nine teachers who completed the five week PDS training cycle almost a year prior to the data collection. A summary profile will be constructed using content analysis to assess classroom teaching practices.

The study will examine:

1. Whether teachers trained at the Professional Development School are exhibiting behaviors that document implementation of the PDS model;
2. Strengths and weaknesses in implementation of the PDS training as they relate to effective teaching practices;

Background: Performance Based Assessment

Since the 1950's, educational research has increasingly focused on how classroom teacher performance influences student learning. A number of assessment paradigms have been designed to evaluate effective teaching as it relates to effective learning (Ellett, Loup, & Chauvin, 1993;

Egelson, 1994; Gage, 1963). Learning paradigms, however, are centuries old and originate out of very fundamental philosophical interests in the nature of learning and teaching. Over the years, as effective teaching became a serious research interest, questions of what constitute the indicators of effective teaching became an area of practical concern for both education practitioners and for education research.

However, along with an interest in identifying the so called ingredients of effective teaching, serious concern developed that performance based teacher evaluation would be primarily used only to hold teachers accountable and to dismiss teachers who perform poorly. These assumptions exemplify the more traditional notion of summative evaluation as accountability (Nevo, 1994). Likewise, of concern is the idea that student performance based assessment would be incorrectly used to assure only that students meet teacher and parental expectations. More modern approaches, however, see formative evaluation as constructive means to provide feedback for improvement, essentially "not to prove but to improve" teaching effectiveness (Stufflebeam, 1971).

Common today in most formative evaluation models are key concepts that all students can learn and that teaching and learning are elements of a "total process". Embedded in these broadest dimensions of effective teaching are more specific activities, such as planning, instruction, management of the classroom environment, the assessment of learning, and professional development. Within these broad categories of educational activities, teaching assessment models seek to operationalize a range of more discrete behaviors as specific indicators of effective teaching.

In summary, it appears that evaluation paradigms are currently more commonly proposed to assist educators in setting goals, priorities, and planning, which is directed toward effective teaching and learning. In the end, however, the constructive potential of performance based methods of assessment depend on how they are used, and what educational supports, including instructional goals, curriculum, and teaching activities will back them up (Darling-Hammond, 1994).

Evaluation Methodology

Both classroom observation methods and instruments presented in the literature were

reviewed for the purpose of understanding how teacher performance might be empirically assessed in this evaluation of the Newark school district's Professional Development School.

In researching methodologies for assessing teaching performance, it was not a surprise to discover that developing standards for assessing effective teaching is complex both conceptually and empirically. What, for example, do we mean conceptually by systematic observation of teaching, and what kinds of behaviors are to be looked for? Of practical concern, on the other hand, the literature identifies two types of observation instruments which tend to be used - high-inference observation systems which require observers to make global assessments of teacher performance, and low inference systems which describe specific discrete behaviors (Hines, et al, 1994). High inference constructs are not clearly operationalized, tend to be more subjective, and have questionable reliability and validity. The value of high inference observation instruments, however, lies in their ability to differentiate the context and qualitative dimensions of instruction. Low inference instruments record frequencies of discrete behaviors, tend to be more objective and reliable, but are limited in their ability to capture the qualitative dimensions of teaching behavior.

The observation instruments used in this study were non-structured process recordings called "scripts" which were written by the PDS clinicians. These instruments would fall under the category of high-inference systems. However, the method used by the clinicians for recording behaviors, the scripting process, was one they were trained in and is based on the teaching principles and specific behavioral indicators derived from the instructional Theory into Practice (ITIP) professional development training model. Since three observations per teacher were made by a scriptor, it was possible to identify consistencies in some of the assessment domains, as well as different features of classroom teacher behaviors which might vary for different content areas such as math instruction, reading, writing, social studies, or science, and whether a lesson was to teach and demonstrate original writing, or review and reinforce previously taught skills.

In order to develop behavioral indicators and a coding schema that would fairly represent the PDS training model, which incorporated aspects of several teaching and learning models, the evaluation strategy first identified concepts and behavioral indicators including auditory strings derived from the ITIP model, the PDS philosophy and pedagogy for professional development,

and from current teaching assessment literature. Both the PDS program director and a consultant to the PDS from Montclair State University helped to develop some of the behavioral indicators for the content analysis. They also helped to field test the coding with a sample of scripts.

A combination of content analysis and procedural mapping were adapted as the evaluating strategy to examine and code the classroom observation scripts (Carley and Palmquist, 1992; Weber, 1985). Procedural mapping takes into account the context within which content occurs, and not just the frequency of occurrence alone.

The coding schema was developed empirically for this study. First, three broad categories were identified as encompassing the major components of effective teaching based upon the performance literature and the goals of the PDS model (Carley, Palmquist, 1992). Since the classroom observation scripting is used for coaching and follow-up support with teachers who have been trained, the classroom scripting conducted by the clinicians of the 9 teachers for this case study analysis is aligned and compatible with the PDS model and the ITIP principles of staff development. Consequently, the 3 categories which define the domains of effective teaching, (Instructional Objectives, Instructional Practices and Teacher/Student Interaction) as well as the behavioral indicators, which operationalize these domains, are aligned with ITIP and PDS training model principles and practices. Second, behavioral indicators (i.e. observable behaviors or auditory strings), were identified under the broader domains. Third, the frequencies of occurrence of the behavioral indicators were tabulated to help construct individual teacher profiles using this mapping and content analysis method.

Three separate observations were conducted of each teacher. The three scripts on each teacher were recorded during a two week period in May for each of the 9 teachers. Four clinicians participated in the observations for this study, and were responsible for all observations of the same teacher.

Methodological Problems

There are several problems with the classroom observation methods employed in this study. The classroom observation scripting is a method that was not designed for evaluation purposes, but for coaching and follow-up support with the teachers who are trained. In other

words, not all aspects of teacher behavior and classroom instruction which may impact on the learner and the learning process are recorded, and therefore are not measurable using the scripting method. For example:

- The scripting does not record data on various aspects related to classroom organization/class management. For example, information which would be important to know about how class time was distributed among various activities/behaviors during the observation period is not accessible from the scripts.
- The lessons are recorded from a teacher centered perspective, with the teacher as the central focus for the scriptor. Consequently, it was difficult to assess directly the levels of student participation, and even more difficult to assess the level of social interaction in the classroom. At best, a reader of the scripts could identify student group or individual activity only from the scriptor's reporting of a teacher's verbal communications about what is taking place. Teacher initiated behavior is recorded in some detail, whereas student responses are abbreviated and noted with an "R". Student responses may be recorded at greater length if the teacher repeats a response from a student. Consequently, student initiated activity is not reported as process, but as secondary to teacher initiated behaviors.

Also, of methodological concern is the post observation design. Although 3 recorded classroom observations per teacher help to strengthen reliability in measurement of each teacher's behavior profile, all observations took place only after the PDS training. Consequently, an assessment of change from pre-training to post-training was not possible within the constraints of this post hoc design.

The Domains of Effective Teaching Paradigm

Table 1 reported below illustrates the concepts and operational variables developed for use in this study.

Under Domains of Effective Teaching are listed:

Instructional Objectives

The definition of Instructional Objectives is derived from Instructional Theory Into Practice, a research based staff development model developed by Madeline Hunter. ITIP focuses on the improvement of teachers' instructional skills. It is based upon assumptions that teaching and learning are inextricably interwoven. Teaching behaviors and decisions are related to the interactions between the learning task, the behavior of the learner, and the behavior of the teacher.

TABLE 1

Domains of Effective Teaching: A Content Analysis Paradigm

	Instructional Objectives	Instructional Practices	Teacher/Student Interaction
Behavioral Indicators	1. Curriculum - what is to be learned; 2. Activities - methodology to facilitate learning; list, name, graph, write; 3. Measurable Behavior - conditions for mastery, i.e. the learner will demonstrate...;	Cognitive Levels: a. Knowledge - recall, list, define b. Comprehension - explain c. Application - example, use d. Analysis - compare, clarify... e. Synthesis - new formulation f. Evaluation - criticize, conclude, - justify Teaching Strategies: - Range of Teaching modalities and practices - Cooperative work, problem solving approach to instruction, facilitate learning, monitor learning, reteach, use of manipulatives, etc.;	Motivation: - teacher interest, enthusiasm, recognition of success, encourage, etc.; Active Student Participation: - cooperative learning, positive peer support, other student initiated activity;

An Instructional Objective states specific objectives that students will meet in order that the general curriculum objectives will be met. It contains three components, each of which has specific **behavioral indicators**: 1) the learning content - the curriculum content to be learned, 2) activities to facilitate learning - i.e. list, name, graph, write, and 3) the conditions for mastery - i.e. the learner will demonstrate... Frequencies of occurrence of the behavioral indicators were tabulated for the analysis. A score of HIGH, MODERATE, and LOW was derived by averaging the coding over the 3 scripts which were recorded per teacher.

Instructional Practices

Instructional Practices that facilitate learning and mastery use teaching strategies which

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will demonstrate multiple levels of cognitive learning in the student. Current thinking, research and practice in education have made a major shift away from concrete and rote learning to a more integrated approach to learning of concepts and applications of concepts to new learning. This includes teaching the learning objective at the correct level of difficulty according to the 6 levels of Bloom's Taxonomy (knowledge, comprehension, application, analysis, synthesis, and evaluation), and application of appropriate teaching strategies to facilitate higher level cognitive learning and mastery - i.e. cooperative work, problem solving approach to instruction, content integration, facilitate learning, monitor learning, reteach, use of manipulatives, etc... Frequencies of occurrence of the behavioral indicators were tabulated for the analysis. A score of HIGH, MODERATE, and LOW was derived by averaging the coding over the 3 scripts which were recorded per teacher.

Teacher/Student Interactions

Teacher/Student Interactions relate to both motivation and levels of active student participation in learning. Current thinking, research, and practice support a more process oriented approach to learning in which the learner is an active participant. Research has also found a direct relationship between student achievement, self esteem, and teacher expectations. With an emphasis on understanding the physical/emotional/social developmental processes of adolescence, the Professional Development School includes in its teacher training curriculum an emphasis on adolescent development, its impact on the adolescent learner, and teaching strategies that foster the motivation to learn, and the self esteem and confidence to master learning tasks and achieve successful school outcomes. Behavioral indicators of Teacher/Student Interactions include motivational variables such as teacher interest, teacher enthusiasm, recognition of success, and encouragement, and indicators of active student participation such as cooperative learning, positive peer support, and student initiated activity. Frequencies of occurrence of the behavioral indicators were tabulated for the analysis. A score of HIGH, MODERATE, and LOW was derived by averaging the coding over the 3 scripts which were recorded per teacher.

Prior mention has been made of the limitations in the methodology used in this study. For example, 1) a high inferential classroom observation instrument, one designed for peer coaching and not for research purposes, is likely to compromise validity of the findings, and 2) the content analysis, applied to blocks of text for a richer contextual understanding, is likely to

will demonstrate multiple levels of cognitive learning in the student. Current thinking, research and practice in education have made a major shift away from concrete and rote learning to a more integrated approach to learning of concepts and applications of concepts to new learning. This includes teaching the learning objective at the correct level of difficulty according to the 6 levels of Bloom's Taxonomy (knowledge, comprehension, application, analysis, synthesis, and evaluation), and application of appropriate teaching strategies to facilitate higher level cognitive learning and mastery - i.e. cooperative work, problem solving approach to instruction, content integration, facilitate learning, monitor learning, reteach, use of manipulatives, etc... Frequencies of occurrence of the behavioral indicators were tabulated for the analysis. A score of HIGH, MODERATE, and LOW was derived by averaging the coding over the 3 scripts which were recorded per teacher.

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compromise the reliability of the findings. However, despite these concerns, precautions were taken to develop a coding strategy that would reflect the philosophy and pedagogy of the PDS model. A coding schema was developed with input from the PDS program director, and a training consultant from Montclair State University.

The findings reported for each teacher in Table 2 show the data summatively grouped as high, moderate, and low based on the frequency of occurrence of behaviors identified under the three domains of effective teaching. A rating of high, moderate or low represents an average over the three recorded observations per teacher. Below are some examples of how scripted behaviors were coded:

Under Instructional Objectives, a script was rated high if the observation contained all 3 components: learning content/curriculum, activities in the observed lesson to facilitate that learning, and criteria established by teacher with students to demonstrate mastery; a script was rated moderate if the observation contained 2 of 3 components; and a script was rated Low if the observation contained only 1 of 3 components:

High: i.e. "The learner will be able to demonstrate knowledge of the writing process by a writing sample"; (content, activity and measurable outcome);

"learner will be able to identify the importance of making the right decision (i.e. the impact of the AIDS virus) by writing consequences and decisions in their groups"; (content, activity and measurable outcome);

Moderate: i.e. "Everyone knows we've been going over cause and effect. Who can give me an example? Figure it out...what are the signal words, everybody? (content and activity)

Low: i.e. Such a script would not explicitly define nor reasonably imply any 2 of 3 of the above in the process of the script.

Under Instructional Practices, a script was rated high if the teacher demonstrated teaching strategies which elicited higher order cognitive thinking in the scripted lesson; rated moderate if the teacher demonstrated strategies along Bloom's Taxonomy which reflect more than application but fell short of new formulations and criticism; and rated low if the teacher demonstrated strategies which reflect only concrete and applied levels of knowledge:

High: would expect to see demonstrated inference and transfer of knowledge; i.e. "let's plan the sequel to this book,...based on your common sense what would you put in the sequel; predict the outcomes.":

TABLE 2

Implementation: Performance Profiles of Nine Teachers Trained During 1992-1993

Script	INSTRUCTIONAL OBJECTIVES: 1. Curriculum 2. Activities 3. Measurable Behavior	INSTRUCTIONAL PRACTICES: Cognitive Levels/Teaching Strategies	TEACHER/STUDENT INTERACTION: Levels of Implementation - i.e. Motivation, Interest Feeling Tone Active Student Participation
Teacher A	***2/3 - MODERATE*** I.O.: Generalization; Cause & Effect; Integrating Vocabulary, Reading, and Graphs; **Weakness**: Measurable Outcomes	***MODERATE:*** Inferential Thinking and Integration of Learning; Co-operative Learning and Charts used for Reinforcement and Feedback	***HIGH:*** Read together, Charts, Cooperative Learning Groups
Teacher B	***2/3 - MODERATE*** I.O.: Reading Main Idea; Writing, Science; **Weakness**: Measurable Outcomes	***LOW-MODERATE:*** Mostly Concrete Level Cognitive Skills; Students help Develop a Story; Cooperative Learning for Reinforcement and Feedback	***MODERATE:*** Whole Group, Chart on Board, Students Read Independently, Students Participation Cooperative Learning Groups
Teacher C	***1/3 - LOW*** I.O.: Reading Definition of Vocabulary; Math Stem and Leaf Plots, Pythagorean Theorem; Reading - Context Clues; **Weakness**: Learning Concepts in Math; Measurable Outcomes in Math and Reading	***LOW:*** Mostly Mechanics vs Concepts; Weak in Analysis and Problem Solving; Limited Range of Teacher Strategies, mostly Teacher Directed Instruction, Whole Class Feedback and Practice	***LOW:*** Mostly Individual and Whole Class Responses; Extent of Student Participation Difficult to Assess

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TABLE 2 (CONTINUED)

Script	INSTRUCTIONAL OBJECTIVES: 1. Curriculum 2. Activities 3. Measurable Behavior	INSTRUCTIONAL PRACTICES: Cognitive Levels/Teaching Strategies	TEACHER/STUDENT INTERACTION: Levels of Implementation - i.e. Motivation, Interest Feeling Tone Active Student Participation
Teacher D	*2/3 - MODERATE* I.O.: Integrating Reading and Math; Reading, Generalizations and Prefixes as they Relate to Math; Graphs and How they Correlate with Reading Activities; Review Vocabulary for Test	*LOW:* Mostly Application and Examples for Feedback and Review; Teacher Directed Instruction for Whole Class Feedback and Practice	*LOW:* Whole Class Responses; Individual Students Read their Reports or do Graph Work; Difficult to Assess Extent of Student Participation
Teacher E	*3/3 - HIGH* I.O.: Plotting Graphs to Summarize Information; review of Multiplication and Division; Writing Process and Sample	HIGH: Transfer of Learning, Comparisons and Inferring from Example to a New Situation; Reformulating Knowledge; Cooperative Learning Groups, Teacher Facilitates	*MODERATE:* Active Student Participation and Teacher/ Interaction, High Motivation
Teacher F	*3/3 - HIGH* I.O.: Review Adjectives; Creative Writing Samples using Similes; Reading and Predicting Outcomes	*HIGH:* Task Analysis; Retelling Stories and Creating Different Stories and Endings; Assessment; Cooperative Learning Groups, Teacher Facilitates	*MODERATE:* Active Student Participation, Group Decision Making, Teamwork, Cooperative Learning Groups

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TABLE 2 (CONTINUED)

Script	INSTRUCTIONAL OBJECTIVES: 1. Curriculum 2. Activities 3. Measurable Behavior	INSTRUCTIONAL PRACTICES: Cognitive Levels/Teaching Strategies	TEACHER/STUDENT INTERACTION: Levels of Implementation - i.e. Motivation, Interest Feeling Tone Active Student Participation
Teacher G	***2/3 - MODERATE*** I.O.: Identify Adjectives, use of Adjectives to Improve Communication, Teacher Reads Student Papers on Careers, Career Goals and Class Visit to Another School	***MODERATE:*** Strongest on Examples and Application; Some Transfer of Learning when Students are asked to Propose Changes to their own School based on Ideas from an Out of District School Visit; Drill and Practice; Teacher Directed Lessons with Small Group and Individual Student Feedback	***MODERATE:*** Cooperative Learning Groups
Teacher H	***2/3 - MODERATE*** I.O.: Writing Process and Decision making; Social Studies Review, Social Structure and Organization; Geographic Characteristics of Cities, Etc., Group Projects	***MODERATE:*** Teacher Guides Students using small Group Learning to Elicit Inferential Thinking about How Civilizations Live and Thrive; Cooperative Learning Group, Decision Making	***HIGH:*** Active Student Participation; Teacher/ Student Interactions Around Map and Group Assignments, Oral and Written
Teacher I	***1/3 - LOW*** I.O.: Review Focused on Example to Define Persuasion, Propaganda and Generalities; Review of Cause and Effect; **Weakness**; Measurable Outcomes, Activities	***LOW:*** Strong on Examples and Applications Weak on Analysis and Inference; Teacher Directed Whole Group Instruction, Review and Reinforcement by Examples, Cooperative Learning Project Assigned, but Not Reported in the Scripting	***LOW/MODERATE:*** Examples and Experiences Related to Instructional Objectives are Shared by Teacher and Students; Cooperative Learning begun, but Process and Out-come Not Reported in the Scripting

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Moderate: "let's confer about 1 minute in each group about the cause and effect in this sentence"; or, "as you are watching this VCR think of the choices being made,...think of the consequences."

Low: i.e. "When a graph goes from left to right what is it? (R - a horizontal bar graph)";...the teacher asks student in a drill and practice exchange to give examples and review applications.

Under Teacher/Student Interaction, a script was rated high if the lesson demonstrated student motivation and active student participation; rated moderate if some student participation and/or teacher interest and motivation were demonstrated; and was rated low if behavioral indicators suggested primarily whole class responses, teacher directed instruction and/or negative student/teacher interaction.

High: would expect to see demonstrated teacher interest, enthusiasm, recognition of student success, progress, redirection, etc.:, and also teacher encouraged student initiated activities like cooperative learning, positive peer support;

Let's zero in on what we are reading; "T...come up and read, let's read that together with T,...who can give cause and effect,...'good',...read it again J,...sometimes you have to figure it out on your own or in your groups";

"Remember cooperative learning involves everyone,...don't shut anyone out",...give this group a round of applause";

Moderate: Some active student participation and student motivation, but mainly teacher directed activity; i.e. "I want you to listen to this passage as I read it; from what we see, what does the word 'emphasis' mean?...alright, pretty good...explain it,...(student responds), great thought, (student responds with more details);

Low: Mostly whole class (choral) or individual student responses -little social interaction;...i.e. "Raise your hand and tell me the part of speech (R - class raise hands and respond together some say, 'noun', 'verb')...teacher says 'o.k. it's a verb - what is a verb? (choral response);

Teacher reads paragraph out loud...students follow along from their copy;

"...you didn't read it well, you are wrong,...we are going back to first grade work";

Evaluation Findings

Table 2 shows the behavioral profiles for each of the nine teachers who were scripted. The scripting took place approximately one year following the PDS training.

Findings from Table 2 show that:

- No one teacher scored high in all three Domains; however, two teachers did score high in 2 of 3 Domains, both in **Instructional Objectives** and **Instructional Practices**; and a third teacher scored high in **Teacher/Student Interaction** and moderate in the other two Domains; no teacher who scored high in a Domain scored low in another suggesting that there were no teachers who exhibited both extremes of high and low performance across the Domains of effective teaching;

- One teacher scored low in all three Domains; the three teachers who scored low in one area, also scored low in at least two of three Domains, suggesting weaknesses in more than one Domain of effective teaching; one teacher who scored low in **Instructional Objectives** and **Instructional Practices**, also scored low/moderate in **Teacher/Student Interaction**; and one teacher scored low in **Instructional Practices** and **Teacher/Student Interaction** but moderate in **Instructional Objectives**;

Findings summarized by levels of implementation which are reported in Table 3 below show:

- Two teachers scored high on **Instructional Objectives**. They met all three operational criteria that comprise this domain, that is, their instruction identifies learning content, develops activities to promote learning, and specifies criteria for mastery; five teachers scored moderate, meaning they demonstrated 2 of 3; and 2 scored low, having demonstrated only 1 of 3; overall, 7 of 9 teachers demonstrated strengths in this Domain of effective teaching.

- Two teachers scored high on **Instructional Practices** and met the criteria to elicit multiple levels of cognitive development in students, that is, their instruction reflected a more integrated approach to learning of concepts, and application of teaching strategies to facilitate higher level cognitive learning; three teachers scored moderate; 1 scored low-moderate; and three scored low, demonstrating mostly application and examples through mainly teacher directed instruction and whole class feedback, practice and drill; overall, only five of nine clearly demonstrated strengths in the area of **Instructional Practices**.

- Two teachers scored high on **Teacher/Student Interaction** and met criteria that demonstrated high interest/motivation and levels of active student participation; four teachers scored moderate; one scored low/moderate; and two teachers scored low, demonstrating mostly whole class responses, mostly teacher directed learning, and learning environments where the extent of active student participation was at best difficult to assess; overall, six of nine teachers demonstrated strengths in this Domain of effective teaching.

TABLE 3

Levels of Implementation by Domains of Effective Teaching

Performance Level	Instructional Objectives	Instructional Practices	Teacher/Student Interaction
High	2	2	2
Moderate	5	3	4
Low/Moderate	--	1	1
Low	2	3	2

Summary

In summary, given the methodological constraints, it is difficult to conclude either that behavioral patterns of teachers in the case study sample are a result of the PDS experience or that teacher classroom behaviors have changed from prior to the PDS experience. However, the coding schema developed for this case study observation method was developed with some broad based input, and does reflect the teaching principles and specific behavioral indicators derived from ITIP, the professional development training model, and from effective teaching practice literature. The mapping and content analysis strategy did produce findings that support the implementation of effective teaching practices. However, findings also suggest areas of weakness.

1. ***Instructional Objectives:*** In preparing teachers to present instructional lessons so that curriculum objectives are met, the findings support the need to strengthen teachers' skills in developing criteria for mastery.

2. ***Instructional Practices:*** In preparing teachers to use teaching strategies which will demonstrate higher levels of cognitive learning in students, there is a need to strengthen content learning for teachers, as well as to improve teacher's strategies that elicit higher level cognitive learning. Teachers must themselves feel confident and competent to use more creative problem solving approaches to instruction.

3. ***Teacher/Student Interactions:*** To prepare teachers so they can support learning environments where the learner is an active participant, there is a need to strengthen teacher practices that affirm high expectations for student achievement, that help students build self esteem, and that value students' learning experiences and academic progress/success.

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CHAPTER FOUR

Attitudinal Dispositions among Participating Teachers Before and After PDS Training

Professional Development School Survey

As intimated in Chapter One, the assessment of the effectiveness of any staff development program must examine the impact on teacher behavior as well as teacher attitudes. Our earlier discussion of teacher needs presented in Chapter Two, spoke of poor motivation levels among visiting teachers, and the perceptions that the school environment was non-supportive of them. In this Chapter, we take up the issue of how meaningful an impact if any, the PDS training had on teacher attitudes. A survey was administered to 47 teachers who received training during the 1993-1994 school year. Thirty-three of the teachers responded to the instrument which was administered before their training and at the end.

Based on the data collected from the survey, this chapter addresses teachers attitudes toward professional development, their teaching experiences, and school environment. The first set of findings presented focuses on teacher attitudes before they took part in the Professional Development Program. The subsequent discussions center on teachers' attitudinal changes after they participated in the Professional Development School. Finally the attitudes of the subset of teachers studied in the preceding chapter are examined to see if there is a link between attitudinal shifts and implementation behaviors.

The Profile of the Teachers

Respondents to the survey were teachers from the sixth, seventh, and eighth grades. Forty-six percent of them were sixth grade teachers, 33 percent were seventh grade teachers, and eighteen percent were eighth grade teachers. Sixty percent of the teachers hold a Bachelors' degrees, 12 percent have Masters' degrees, and 27 percent have Masters' degrees plus 30 credits. A majority of the respondents have been teaching for 16 years or more in the District (64 percent).

Data Analysis

A variety of statistical techniques were used to analyze the data. Reliability tests, along with conceptual groupings, were used to first identify the important dimensions in the data. Based on these results a number of scales and subscales were developed. A series of reliability tests on the scales and subscales were carried out. T-tests for paired samples were used to test for significant changes in teachers' attitudes after they attended the Professional Development program.

Measurement of the Scales and Subscales

Three major dimensions of teachers attitudes emerged from the data. These dimensions were: professional goals and expectations, job satisfaction, and school environment. These general attitudinal scales had embedded in them subscales. Under the general scale of professional goals and expectations are three subscales assessing teachers' perceptions about areas of professional self improvement, students' needs and their expectations regarding teaching. Four subscales comprise the general job satisfaction scale. These subscales are job stress, current job satisfaction, decision-making power and collegiality. The last general scale on teacher perception of school environment is made up of five subscales, teacher perceptions of (i) the existence of an ethos of cooperation in their school, (ii) level of support from school, (iii) efficacy of school leadership, (iv) school climate and (v) adequacy of physical environment. Each of the subscales are likert-type scored with values ranging from 1 to 5. The following discussion presents information on the statistical properties expressed in the form of inter-item correlation for each subscale.

Professional Goals and Expectations

The subscale professional improvement measures teachers' goals pertinent to their professional development. It consists of five items. For example, "I feel I need to explore more avenues to help students understand content areas", "I need to help my students build self esteem", "I would like to improve my knowledge of the subject matter I teach", "I would like to improve my skills related to classroom management", "Teachers in this school need to work more closely together" (see Appendix 1). The inter-item correlation among these items is .36[1]. The results from a reliability test yields an alpha of .74[2]. The subscale measuring students' needs surveys teachers' perceptions about their students. Four items comprise this scale. Items

on this subscale included: "The students I teach seem to lack a strong motivation to learn", "The students in my classes need to develop broader interests", "The students I teach need help in their critical thinking abilities". "Most of the students I teach are not interested in learning". This scale has an inter-item correlation of .34. The teacher expectations subscale has an inter-item correlation of .37 and a reliability coefficient of .64.

Job Satisfaction

The job satisfaction scale consists of four subscales: 1) Professional stress; 2) job satisfaction; 3) power in decision making; and 4) collegiality, with an alpha of .63. The first subscale professional stress has four items which measures teaches' attitudes toward teaching. Although the inter-item correlation among these items is relatively low with a value of .13, all questions are conceptually related to the issues of stress. Examples of these items are "I find teaching to be stressful", "I feel generally enthusiastic about teaching". The reliability test for this subscale generates an alpha coefficient of .37. The second subscale of job satisfaction measures teachers' satisfaction with their current jobs. This subscale has eight items, which measure a wide range of teachers' feelings about their present jobs. Typical items of this scale include "I don't have enough planning time", "I feel very frustrated with my job", "I would rather teach in my present system than elsewhere", "I feel a great sense of pride about the work I do". The reliability test yields an alpha coefficient of .52. The teacher perception of power in decision making in school, subscales has a reliability coefficient of .38. The last subscale of collegiality had an inter-item correlation of .37 and an alpha of .70.

School Environment

The general scale of school environment is made up of five subscales. These are 1) cooperation among colleagues; 2) support from school; 3) school leadership; 4) school climate; and 5) physical environment. Stockyard and Mayberry indicate that school environments involve four fundamental components: "(a) academic expectations and excellence; (b) strong, collaborative school leadership; (c) orderly environments and school coherence; and (d) high student and teacher morale" (Stockyard and Mayberry, 1992:24). The scale has an inter-item correlation of .53, which results in an alpha of .85 based on a reliability test.

The first subscale cooperation among colleagues, has five items with an inter-item correlation of .37. Examples of items on this subscale are "Staff members support and

encourage each other at this school", and "There is a great deal of cooperative effort among staff members". The second subscale teachers' feelings about support from school, has a total of ten items with an inter-item correlation of .48, and a reliability coefficient of .90. This suggests a high correlation among all the items. The third subscale teachers' perceptions of school leadership, is composed of five items. Examples of items making up this scale are "There is clear, strong, centralized instructional leadership from the principal in this school", "Goals and priorities for the school are clear", and "This school is effectively led". The school climate subscale, containing such questions as, "School personnel spend adequate time communicating with parents", "This school is getting better", and "This school is concerned about students' social and emotional development" has an inter-item correlation of .52 and a reliability coefficient of .88. The last subscale teachers' perception of the physical environment has an alpha of .36. The inter-item correlation and alpha (.92) for this subscale are significantly high.

Findings

The teachers' attitudinal survey covered a range of issues related to job satisfaction, school climate, culture, professional goals and expectations (see previous discussion). Using a range of descriptive statistics, the following discussion presents an analysis of these attitudes. The discussion is schematically divided into three parts. The first, presents an overview of teachers' attitudes prior to entering the PDS. In the second, attitudinal changes after PDS training are measured. The third section discusses the link between attitudes and behaviors for the nine teachers studied in Chapter three.

Teachers' Feelings about their Profession, Students and Areas in Need of Professional Growth Prior to Entering the PDS

Over half of the PDS teachers surveyed prior to training felt that they needed to explore avenues for professional improvement. Interestingly, more than 80 percent noted that the area of greatest need pertained to helping their students build self esteem. Another significant percent, 72% felt that they needed to improve knowledge of the subject matter which they taught. Over 85 percent felt that they needed to know how to work more closely together with fellow teachers. Of all, the area of classroom management skills was given the lowest priority in which improvement was needed.

TABLE 4

Teachers' Perception of Professional Goals, Job Satisfaction and School Environment

Scale I. Professional Goals and Expectations	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(Professional Self Improvement)					
I feel I need to explore more avenues to help students understand content areas.	27.0	42.0	6.1	15.2	9.1
I need to help my students build self esteem.	63.6	21.2	6.1	6.1	3.0
I would like to improve my knowledge of the subject matter I teach.	18.2	54.5	6.1	12.1	9.1
I would like to improve my skills related to classroom management.	18.2	33.3	3.0	27.3	18.2
Teachers in this school need to work more closely together.	48.5	39.4	6.1	3.0	3.0
(Students' Needs)					
The students I teach seem to lack a strong motivation to learn.	36.4	21.2	3.0	21.2	18.2
The students in my classes need to develop broader interests.	48.5	42.4	3.0	0.0	6.1
The students I teach need help in their critical thinking abilities.	54.5	36.4	3.0	3.0	3.0
Most of the students I teach are not interested in learning.	9.1	12.1	6.1	45.5	27.3
(Professional Expectations)					
I have not had adequate supports to grow professionally.	6.1	18.2	12.1	27.3	36.4
I believed that consistent and firm classroom discipline is an important prerequisite to learning.	45.5	39.4	3.0	12.1	0.0
Classroom observations are the best way to give me feedback on my teaching strategies.	12.1	24.2	6.1	39.4	18.2

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TABLE 4 (CONTINUED)

Scale II. Job Satisfaction	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(Professional Stress)					
I find teaching to be stressful.	18.2	54.5	6.1	15.2	6.1
There is a lot of pressure associated with being a teacher.	39.4	54.5	3.0	0.0	3.0
I feel generally enthusiastic about teaching.	39.4	51.5	6.1	3.0	0.0
I rarely consider leaving the teaching profession.	21.4	12.1	42.4	15.2	9.1
(Current Job Satisfaction)					
I believed I make a difference as a teacher with my students.	57.6	36.4	6.1	0.0	0.0
I don't have enough planning time.	24.2	42.4	6.1	27.3	0.0
There is too much paperwork involved with my job.	54.5	27.3	3.0	12.1	3.0
I feel very frustrated with my job.	12.1	18.2	15.2	33.3	21.2
Sometimes I feel I am failure as a teacher.	00.0	15.2	24.2	30.3	45.5
I would rather teach in my present system than elsewhere.	36.4	24.2	27.3	9.1	3.0
I feel that my teaching is effective.	45.5	48.5	6.1	0.0	0.0
I feel a great sense of pride about the work I do.	48.5	42.4	6.1	3.0	0.0
(Power in Decision Making)					
There are few opportunities for participating in decision making.	36.4	39.4	12.1	12.1	0.0
I feel comfortable in my relationships with administrators.	42.4	42.4	12.1	15.2	6.1
I have sufficient leeway to use my own ideas in teaching.	12.1	42.4	6.1	18.2	21.2

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TABLE 4 (CONTINUED)

Scale II. Job Satisfaction (Continued)	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(Collegiality)					
I feel liked and respected by my colleagues.	24.2	57.6	12.1	6.1	0.0
I rarely have feelings about being trapped in a bad situation.	21.2	45.5	9.1	18.2	6.1
I have many colleagues with whom I can talk about my feelings and problems.	24.2	42.4	12.1	15.2	6.1
I rarely feel isolated from my colleagues at work.	21.2	42.4	6.1	18.2	21.2
Scale III. School Environment					
(Cooperation Among Colleagues)					
I make a conscious effort to coordinate my teaching with what occurs at other grades levels.	12.1	69.7	9.1	9.1	9.1
Staff members support and encourage each other at this school.	3.0	63.6	15.2	6.1	12.1
There is a great deal of cooperative effort among staff members.	6.1	42.4	15.2	27.3	9.1
At the principal's initiative, teachers work together to effectively coordinate the instructional program within and between grades.	12.1	45.5	15.2	18.2	9.1
This school seems like a big family, everyone is close and friendly.	9.1	18.2	9.1	45.5	18.2

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TABLE 4 (CONTINUED)

Scale III. School Environment (Continued)	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(Support from School)					
I have the support of the school administration in enforcing school rules.	21.2	48.5	12.1	15.2	3.0
Staff members are recognized for a job well done.	9.1	33.3	12.1	36.4	9.1
The principal requires and regularly reviews lessons plans.	48.5	42.4	3.0	6.1	0.0
The principal frequently communicates to individual teachers their responsibility in relation to student achievement.	27.3	45.5	3.0	12.1	12.1
The principal reviews and interprets test results with and for the faculty.	30.3	48.5	15.2	3.0	3.0
The school's administrators understand the needs of teachers.	15.2	39.4	15.2	18.2	12.1
Teachers in this school are provided with adequate feedback concerning their professional performance.	21.2	48.5	6.1	21.2	3.0
The principal makes frequent classroom observations.	24.2	42.4	9.1	18.2	6.1
The principal is very active in securing resources and promoting staff development for the faculty.	27.3	45.5	9.1	15.2	3.0
The principal uses test results to recommend modifications or changes in the instructional program.	30.3	51.5	9.1	9.1	9.1
(School Leadership)					
There is clear, strong, centralized instructional leadership from the principal in this school.	30.3	36.4	12.1	18.2	3.0
Supervision is directed at instruction.	12.1	54.5	18.2	9.1	6.1

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TABLE 4 (CONTINUED)

Scale III. School Environment (Continued)	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(School Leadership (Continued)					
The school's communication network is open to effective two-way exchanges among administrators and teachers.	21.2	39.4	15.2	15.2	9.1
Goals and priorities for the school are clear.	27.3	51.5	3.0	9.1	9.1
This school is effectively led.	30.3	30.3	18.2	15.2	6.1
(School Climate)					
Parents are involved in this school.	9.1	27.3	12.1	33.3	18.2
School personnel spend adequate time communicating with parents.	6.1	54.5	21.2	9.1	9.1
Teachers and parents spend time working together.	0.0	18.2	15.2	45.5	21.2
This school is getting better.	12.1	27.3	30.3	18.2	12.1
Parents are well-informed of their children's progress.	21.2	54.5	15.2	9.1	0.0
This school is concerned about students' social and emotional development.	24.2	45.5	12.1	15.2	3.0
Parents are able to communicate about the running of the school.	3.0	33.3	30.3	21.2	12.1
(Physical Environment)					
The level of student misbehavior (e.g., noise, fighting in the halls or cafeteria) in this school interferes with my teaching.	12.1	27.3	3.0	36.4	21.2
I feel safe coming to and going from this school.	6.1	51.5	9.1	30.3	3.0
I have an adequate work space where I can work.	6.1	75.8	3.0	15.2	0.0

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TABLE 4 (CONTINUED)

Scale III. School Environment (Continued)	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
(Physical Environment)					
I have necessary basic materials (e.g., textbooks and supplies for my teaching).	9.1	42.4	9.1	30.3	9.1
My classroom is clean.	18.2	60.6	6.1	9.1	6.1
My classroom has broken windows.	0.0	3.0	3.0	27.3	66.7
My classroom has chipped and peeling paint.	15.2	9.1	3.0	30.3	42.4
On a typical day, my classroom is seldom disrupted by student misbehavior.	9.1	24.2	6.1	27.3	33.3
I have had to spend my own money for school supplies and materials.	39.4	39.4	6.1	15.2	0.0
Students behavior is generally positive in this school.	15.2	45.5	3.0	21.2	15.2
This school is clean and orderly.	18.2	48.5	12.1	9.1	12.1

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Teachers entering the PDS program expressed strong feelings concerning the needs of their students. Over 50 percent noted that students lack a strong motivation to learn, almost ninety percent felt that their students needed to develop broader interests, and a similarly high percent indicated that their students need help in their critical thinking abilities. In spite of these deficiencies, more than seventy percent of the teachers felt that their students were interested in learning.

Upon entering PDS, teachers were generally enthusiastic about teaching (90.9%), rarely considered leaving the profession (24.3%). However, they felt very pressured in their jobs (93.9%) and find the profession of teaching to be generally stressful (72.7%). Perhaps lack of planning time and the paperwork involved with teaching in the district contribute to these feelings. For example, 66.6 percent of the teachers noted that the time allotted for planning was inadequate, and 91.8 percent complained that there is too much paperwork involved with their current jobs. Not-with-standing, teachers feel that they make a difference with their students (94.0%), rarely feel frustrated with their jobs (30%), feel a great sense of pride in what they do (90.9%), and would rather remain in the District than teach elsewhere (60.6%).

Although teachers expressed general satisfaction with their professional experiences in the District, they nevertheless expressed feelings of alienation from the processes of decision-making in their schools. Seventy-five percent of the teachers noted that there are few opportunities in their schools for them to participate in decision-making. Many teachers also seemed to feel that there are few opportunities to be creative in their jobs. Forty percent of the entering PDS teachers noted that they lack sufficient flexibility to incorporate their own ideas in teaching. These findings seem to imply that teachers feel disempowered and unable to influence not only the management of their schools but also their own pedagogical activities within their classrooms.

A school's climate can be measured by the degree to which teachers feel that an 'esprit de corps' characterizes the inter-relationships between faculty, that support from school leadership is forth-coming, that clearly defined goals and expectations are existence and that, the condition of the physical environment is satisfactory. Much of the research has shown that "while most teachers work alone behind doors, they want more opportunities for collaboration and collegiality because they value what they gain from these interactions" (Corcoran, 1994:13).

TABLE 5:

Teachers' Attitudinal Changes After PDS (Results from T-Test)

Variable	Pre/Post Training	Mean	Paired Differences	t-value	P-value (one-tailed)
Professional Goals of Teachers	Pre-Training	18.92			
	Post-Training	19.23	.31	.58	.285
Professional Perceptions About Students	Pre-Training	14.31			
	Post-Training	14.12	-.19	-.30	.385
Professional Expectations of Teachers	Pre-Training	9.27			
	Post-Training	9.31	.04	.08	.467
Teachers' Attitudes Toward Teaching	Pre-Training	11.96			
	Post-Training	12.12	.16	.58	.283
Feel Satisfied About Current Job	Pre-Training	28.92			
	Post-Training	27.70	-1.23	-1.71*	.050
Teachers' View on Power Sharing	Pre-Training	9.27			
	Post-Training	9.42	.16	.33	.372
Teachers' Views on Collegiality	Pre-Training	14.19			
	Post-Training	14.12	-.077	-.14	.446
Teachers' Perceptions of Job Satisfaction	Pre-Training	16.09			
	Post-Training	15.84	-.25	-.85	.201
Teachers' Attitudes Toward Cooperation among Colleagues	Pre-Training	16.08			
	Post-Training	15.52	-.65	-.98	.168
Teachers' Perceptions of Support from School	Pre-Training	37.65			
	Post-Training	35.12	-2.54	-2.78**	.005
Teachers' Views on School Leadership	Pre-Training	18.73			
	Post-Training	17.77	-.96	-1.30	.103
Teachers' Views on School Climate	Pre-Training	22.12			
	Post-Training	21.69	-.42	-.66	.258
Teachers Views on School Physical Environment	Pre-Training	37.27			
	Post-Training	35.96	-1.31	-1.08	.145
Teachers' Perceptions of Overall School Environment	Pre-Training	26.37			
	Post-Training	25.19	-1.18	-1.76*	.046*

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From the data presented in Table 4, one sees that teachers' perceptions toward the various facets and elements of their school culture, especially those relating to the degree of corporation between themselves and other members of their school community, are far from consistent. For example, while most teachers noted that they made a conscious effort to coordinate their teaching with teachers at the same grade levels (82%), they nevertheless felt that there is not generally a great deal of cooperation among staff members (almost 52 percent either disagreed or were uncertain), and significant numbers felt that interpersonal relations among the school community could not be characterized as being close or friendly (63%). Further, while there is some acknowledgement that building administrators do provide support to teachers in enforcing school rules, and in securing resources and providing opportunities for staff development, teachers felt that they receive very little recognition for good performance. In summary one may note, that while teachers tend to express general satisfaction with the manner in which school administrators articulate the instructional goals and priorities for their school, and in securing resources for realizing these goals, there seems to be some dissatisfaction with the levels of extrinsic rewards for good performance.

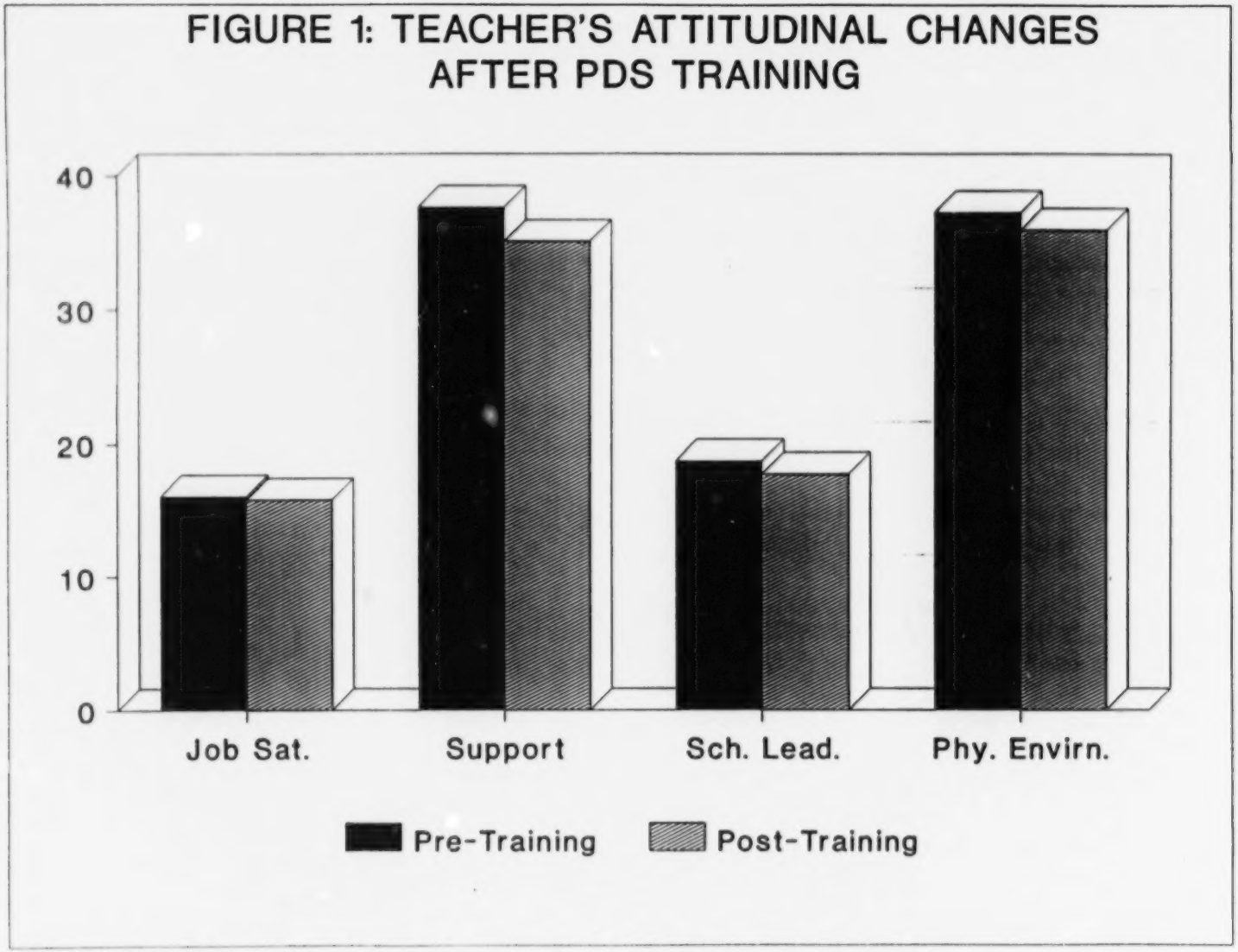
Finally, the study found a fairly moderate correlation between entering PDS teachers' overall job satisfaction and their perception of their school's environment. As indicated by other studies, teachers who report satisfaction with their jobs tend to "express high morale and perceive the school's climate as open and supportive of their role" (Kalis 1980; Newsmann et al. 1989; Sargeant 1967). The current study supports these findings. A positive correlation between job satisfaction and school environment was found. Teachers who reported satisfaction with their jobs were more likely to rate their school climate positively (.48). Similarly, teachers who perceived themselves as satisfied with their jobs tended to view their school's environments in a positive term (.42).

Teachers' Attitudinal Changes After PDS Training

As was stated previously, there is an interest in determining if teacher attitudes underwent any significant changes after the PDS training. To this end, a series of comparative analyses were done contrasting intensity of attitudes and feelings prior to training and after. The findings from these analyses are noteworthy (Refer to Figure 1 and Table 5).

Teachers identification of areas for professional improvement showed minimal changes

FIGURE 1: TEACHER'S ATTITUDINAL CHANGES AFTER PDS TRAINING



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after the PDS training. Similarly, minuscule changes were noted with respect to student need. However, teacher satisfaction with their current jobs did significantly change after training. Scores for the average level of satisfaction before training was 28.9, after training the comparative figure was 27.7 In other words, teachers expressed less satisfaction with their current job upon completion of the PDS training than before. The aspect of their job that teachers rated the poorest after training was planning time. Proportionately more teachers who went through the PDS program were inclined to feel that the amount of time devoted to planning was inadequate once they returned to their home schools. Not surprisingly, the number of teachers expressing frustration with their current job status increased.

The level of support received from school administrators may partially explain this increased frustration. Upon return to their home schools, teachers perception of the level of support from their school administrators fell significantly. Before training, the mean for the support scale was 37.7 compared to a mean of 35.1 upon completion of training. One may surmise from these findings that inorder for teachers to implement what they have learnt from the PDS, support from the home school must be forthcoming. These findings buttress a previous discussion in Chapter 2, where the administrators of the PDS had commented that teachers upon completion of training frequently complained about the non-support received from their school administrators.

This general level of frustration spills over into teacher perception of their school environment and school climate. On subscales measuring these aspects of teacher attitudes teachers register a decline in feelings once they return to their home schools. The possibility is very great, that the PDS experience exposes teachers to new ideas about their profession, and these ideas become new frame of references which are used both consciously and perhaps subconsciously to evaluate their current schools.

Teachers' Attitudes and Classroom Behaviors

This section of the report attempts to examine the links which exist between teacher behaviors and attitudes. In the preceding chapter, an indepth study into teacher classroom behaviors was presented. On the basis of this, teachers were classified into three general levels depending on the degree to which they had implemented various elements of the training received at the PDS. These categories high, moderate and low, were established by an

TABLE 6

Teachers' Post-Training Perceptions and Their Implementation

Teachers' Perceptions	Average Perceptions of Low Implementation (N = 3)	Average Perceptions of Moderate Implementation (N = 4)	Average Perceptions of High Implementation (N = 2)	Average Perceptions of Whole Group (N = 33)
Professional Goals & Expectations:				
Professional Self Improvement	20.67	16.00	23.50	18.94
Students' Needs	14.67	12.05	15.50	14.30
Professional Expectations	9.33	8.75	10.50	9.21
Job Satisfaction				
Professional Stress	12.67	12.25	13.00	11.88
Current Job Satisfaction	28.33	28.75	29.00	28.68
Power in Decision Making	7.67	9.25	10.50	9.55
Collegiality	13.33	14.25	15.50	14.27
School Environment				
Cooperation Among Colleagues	14.33	15.25	18.00	16.21
Support from School	28.67	37.25	38.00	36.97
School Leadership	13.33	18.75	23.50	18.21
School Climate	17.67	20.00	26.00	22.09
School Physical Environment	33.00	36.50	38.50	36.70

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aggregation of behaviors across three domains of teaching: (1) instructional objectives; (2) instructional practices and 3) instructional interactions (a more thorough discussion of these domains is to be found in Chapter 3). In linking attitudes to behaviors, there is an interest in determining whether there are consistencies between teachers feelings and their willingness or ability to translate their teaching experiences at the PDS into their classrooms. The results from these analyses are presented in Table 6. Before discussing the data, it needs to be stated that the in-depth study was conducted on nine teachers. Thus what is being presented with respect to teacher attitudes is more descriptive than inferential.

As can be gleaned from the information in Table 6, clear differences between the three categories of teachers existed on the job satisfaction and school environment scales. Teachers who were low in implementing techniques acquired from their PDS training were more likely to feel disempowered with respect to their decision making abilities in their schools as well exhibit feelings of alienation from their colleagues. The scores for this group of teachers were 7.67 and 13.33 respectively, compared to 9.25 and 14.25 for the moderate implementators and 10.50 or 15.50 for the high implementors.

Similarly low implementors were apt to feel that they receive little support from their school, rate their school climate as being very poor and express dissatisfaction with their school's physical environment. These teachers perceptions of their schools differ not only from the moderate and high implementors, but are also more extremely pessimistic than the entire group of teachers included in the survey (Refer to Table 6).

Obviously the variations in teachers' perceptions about their schools, are associated with the degree to which they engage in effective instructional practices. It is difficult to say however what the nature of the directionality is. Because we are dealing with such small numbers it is also difficult to arrive at an objective picture of the school context independent of these few teachers' perceptions.

Conclusion

Teachers enter the PDS training program with distinct perceptions of areas in need of professional enhancement, and certain definitive viewpoints about their schools. While some of these viewpoints remain unchanged after attending the PDS, teachers attitudes towards certain facets of their school culture changed negatively. These attitudes converged around issues

related generally to school support, school leadership and the school's overall climate. It was posited when these changes were discussed that teachers in order to effectively translate the new knowledge and strategies obtained at the PDS into concrete classroom behaviors will need support from their home schools.

The tenability of this argument is reinforced by the relationship which seems to exist between teacher behavior and attitudes discussed in the concluding section of our presentation of the findings. Here we clearly saw that "low implementators" were more likely to be pessimistic in their feelings and perceptions of their school cultures than teachers rated as high or moderate implementors.

CHAPTER FIVE

Impact of PDS Training on Student Achievement

Student outcomes are a critical focus of any educational program evaluation. Yet, success of some programs cannot be determined solely on the basis of these outcomes. Most programs require a multifaceted approach to their evaluation. Staff development programs are no exceptions, and both the literature as well as the research, (Guskey and Sparks 1991) suggest that a multifaceted approach is more appropriate to evaluate the success of a given staff development program, than a single paradigm evaluation framework based solely on student achievement. The previous chapters explained the influence of factors such as teacher perception, teacher behavior, school environment, and support, on the success of the PDS program. In this chapter we will attempt to evaluate the impact of the program on the performance of students in core academic areas. Although an assessment of the performance of students in the wider context of teachers' effective teaching styles and perception of school environment would provide a more balanced picture on the quality of the program, the limitation of data precludes us from doing this in great detail. Rather, a descriptive analysis of these contextual variables will be presented.

The first part of this chapter will be devoted to the analysis of the achievement of students taught by all the teachers who attended the PDS in the 1991-1992 and 1992-1993 academic years. Their achievement is comparatively examined against the performance of students taught by Non-PDS trained teachers. The second stage of our analysis will focus on a subset of 8 teachers who were retooled in the last cycle of the 1992-1993 school year. The performance of their students is linked to their implementation styles and perceptions of school environment. A word of caution needs to be added here. Due to the nature of the small sample size, the results cannot be conclusive and the interpretation of the results is not generalizable beyond the teachers included in this study.

A Comparison of the (Mean) Performance of Students of all PDS-Trained and Non-PDS Trained Teachers

The sample for this section is comprised of 3629 students from grades 6, 7, and 8, in

schools where the teachers participated in the staff development program. The comparison group is comprised of students from the same schools and grade levels. Thirteen schools in the district are included in the sample - Maple Avenue, Morton Street, Newton Street, Quitman Street, L.A. Spencer, Thirteenth Avenue, Warren Street, Wilson Avenue, Burnet Street, Dayton Street, Hawthorne Avenue, Sussex Avenue, and G.W. Carver. The number of PDS trained teachers for the time period under consideration is approximately 115. Since teachers were retrained at different cycles throughout the 1991-1992 and 1992-1993 school year, there were differences among the length of time between training and the translation of that training into classroom teaching. By using 1994 spring scores, this bias has been removed and all teachers have had at least one full academic year to implement their training. Therefore, outcome measures for students which will be examined are the 1994 Stanford 8 scores.

One of the major research questions addressed by this evaluation is "Whether the performance of students taught by PDS trained teachers differ from that of students taught by Non-PDS trained teachers, and whether this difference can be attributed to the PDS training"? In order to answer this question, an Analysis of Covariance (ANCOVA) was carried out. Sometimes when the performances of students are compared, the results may be tainted by pre-existing differences. One way of circumventing this problem is to control for any pre-existing differences by using the Analysis of Covariance, so that true differences among posttest scores can be delineated. Since earlier chapters have alluded to differences among school contexts, these analyses will also examine student performance within the context of school and grade level variations.

School Level Variations

Table 7 presents the results in reading, language and mathematics. It is clear from the Table that, systematic within school differences in the performance levels of the two groups of students were found in two out of three areas, namely, reading and mathematics. While these results indicate that there were significant differences within schools, they do not clearly state which schools exhibited these differences. Therefore, post-hoc test, Least Significant Difference (LSD) were carried out to discern the school differences.

In the area of reading, three schools, Maple Avenue, Morton Street, and Warren Street did not have a comparison group, since all 6th, 7th and 8th grade students were taught by Non-

FIGURE 2: COMPARATIVE STUDENT PERFORMANCE FOR PDS AND NON-PDS TRAINED TEACHERS

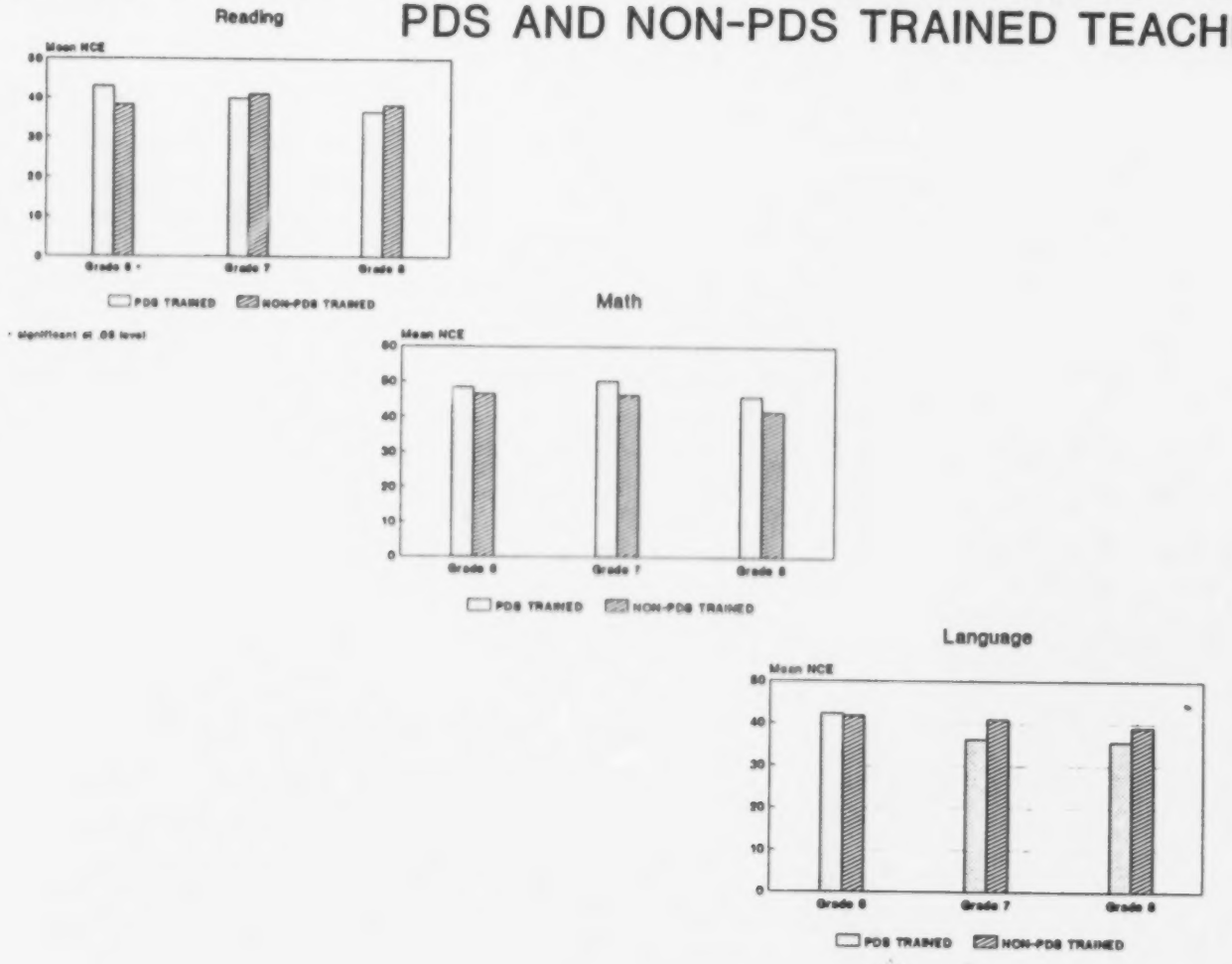

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TABLE 7

Mean Performance of Students (of PDS Trained vs Non-PDS Teachers) in Reading, Math, and Language by School and Grade Level

SCHOOL	READING		MATH		LANGUAGE	
	PDS Trained	Non-PDS	PDS Trained	Non-PDS	PDS Trained	Non-PDS
Maple	NA	45.8	51.4	50.3	46.7	45.7
Morton	NA	32.5	42.1*	37.2	NA	35.8
Newton	33.1	41.3	37.3	37.2	42.1	36.7
Quitman	33.6	35.0	47.3	NA	36.3	38.5
Spencer	27.6	37.5*	43.6	47.2*	36.2	34.6
13th Ave	34.9	37.1	47.5*	43.3	35.1	36.6
Warren	NA	40.0	52.7*	44.8	NA	41.1
Wilson	53.1*	44.8	57.0	65.5*	37.2	53.0
Burnet	47.7	41.3	35.6	37.4	NA	37.4
Dayton	44.2	42.4	48.4*	44.0	43.7	43.2
Hawthorne	42.4*	36.7	48.9	44.7	39.1	36.7
Sussex	36.9	36.1	45.4	42.3	36.4	37.1
GW Carver	38.6	35.8	44.3	43.4	37.6	37.8
GRADE						
6	42.9*	38.2	48.5	46.5	42.2	41.7
7	39.9	41.1	50.1	46.2	36.2	40.9
8	36.6	38.3	45.9	41.6	35.6	39.1
TOTAL	40.7 (617)	38.6 (1089)	48.0 (948)	44.9 (758)	38.5 (482)	40.3 (1,224)

* Significant at .05 level.

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PDS trained teachers. Of the remaining ten schools, in six of these schools PDS taught students posted higher scores than their Non-PDS trained counterparts. However, only three of these comparisons were statistically significant. In other words, students of PDS trained teachers from Wilson Avenue, Burnet Street, and Hawthorne Avenue performed significantly better than their school mates taught by Non-PDS teachers. There was only one school, L.A. Spencer, where the Non-PDS taught students significantly outperformed the PDS taught students. It is possible that the existence of a magnet gifted & talented program within this school may partially account for these results.

In the area of mathematics, comparison groups were available for twelve out of thirteen schools. In nine out of these twelve schools, students of PDS trained teachers scored higher on their math tests than their peers. Statistically significant differences were noted for four schools (Morton Street, Thirteenth Avenue, Warren Street and Dayton Street.). In these schools, PDS taught students' mathematics performance was significantly above the performance of students taught by Non-PDS trained teachers. In two schools, (L.A. Spencer & Wilson Avenue), students taught by the Non-PDS teachers scored significantly higher than their counterparts in the same school.

In summary therefore, when we look at the differential performance levels of students taught by PDS trained teachers versus those taught by Non-PDS trained teachers within the same school, the general tendency is for higher performance levels to be found among the PDS taught group. The instances where the Non-PDS taught group out perform the PDS taught group tends to be fewer.

In the area of language arts, none of the comparisons were significant. In fact, only 5 out of 10 viable comparisons posted higher scores for the PDS group. This may lead one to conclude that, the staff development program had the least impact on student achievement in the area of language arts, as opposed to its more beneficial impact in the areas of mathematics and reading (Refer to Table 7 and Figure 2).

Grade Level Variations

Collapsing the performance across all schools, the next set of analysis focused on detecting any grade level differences in performance. Systematic differences were found only

TABLE 8

Proficiency Rates (Percentage) of Students of PDS Trained and Non-PDS Teachers in the Three Basic Skills Areas

SKILL AREA	READING		MATH		LANGUAGE	
GRADE LEVEL	PDS Trained	Non-PDS	PDS Trained	Non-PDS	PDS Trained	Non-PDS
6	64.9%	62.3%	56.6%	47.6%	62.1%	58.2%
7	53.5%	56.0%	66.3%	56.3%	45.0%	49.5%
8	41.8%	41.0%	46.9%	45.9%	51.1%	36.4%

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in the area of reading at the sixth grade level, where students of PDS teachers outperformed students taught by Non-PDS teachers. While the differences were not statistically significant, both seventh and eighth grade students of PDS teachers consistently scored lower than their grade mates in reading and language arts. This may imply a need to take a closer look at the staff development program at these grade levels. On the other hand, although higher scores in math by the students of PDS teachers suggest better performance on their part, at all three grade levels, a lack of statistical significance indicates that these differences are negligible. Nevertheless, this consistent pattern suggests an overall positive increase in the achievement of students of PDS teachers in the area of mathematics.

A Comparison of the Proficiency Levels of PDS and Non-PDS Students

Looking at students' proficiency level is one useful and alternate way of measuring student outcomes. This is crucial because students are placed in remedial programs if their performance falls below the minimum level of proficiency. Table 8 presents the results of this analysis. The percentages reported in this table reflect the number of students scoring above the cut off. In the area of reading, a slightly higher percentage of sixth grade students taught by PDS teachers (64.9%), appear to have scored above the cutoff than students taught by Non-PDS teachers (62.3%). In the eighth grade, both groups performed in a similar fashion (41% to 42%) and in the seventh, students from the Non-PDS group had a slightly higher percentage (56% vs 54%) of proficient students.

Similar trends were also observed in the area of language arts. Sixth and 8th grade students from the PDS group showed a higher level of proficiency (62.1% and 51.1%) than their cohorts from the Non-PDS group. In the case of the eighth grade, this difference is fairly substantial. In mathematics, at all the three grade levels, proficiency rates for the PDS group was better than the Non-PDS group. At the seventh grade the difference is ten percentage points in favor of the PDS group. This provides another measure of indirect, but positive impact of the staff development program on student achievement, in certain skill areas and grade levels. The results obtained for the area of mathematics once again confirms it to be the strongest skill area for these students.

TABLE 9

Differences in the Performance of Students of PDS Trained Teachers in Reading, Math, and Language by School, and Grade Level

SCHOOL	READING		MATH		LANGUAGE		Ranking in District
	PDS Trained	School	PDS Trained	School	PDS Trained	School	
Maple	---	45.5	51.4*	52.6	46.7*	46.1	13 - (2)
Morton	---	33.1	42.1*	38.6	---	35.9	63 - (13)
Newton	33.1	40.7	37.3	40.5	42.1	44.6	44 - (7)
Quitman	33.6*	35.6	47.3*	48.1	36.3	39.2	52 - (9)
Spencer	27.6	37.9	43.6	46.1	36.2	37.7	40 - (4)
13th Ave	34.9*	36.2	47.5*	43.9	35.1	35.7	54 - (10)
Warren	---	39.2	52.7*	45.5	---	40.4	56 - (12)
Wilson	53.1*	48.9	57.1*	57.9	37.2	49.6	8 - (1)
Burnet	47.7*	43.8	35.6	36.9	---	37.0	43 - (6)
Dayton	44.2*	40.3	48.4*	47.2	43.7*	41.2	24 - (3)
Hawthorne	42.4*	37.6	48.9*	48.2	39.1	37.6	42 - (5)
Sussex	36.9*	36.7	45.4*	42.1	36.4	37.5	45 - (8)
GW Carver	38.6*	37.0	44.3	44.8	37.6	40.4	55 - (11)
GRADE							
6	42.9*		48.5*		42.2*		
7	39.9		50.1*		36.2		
8	36.6		45.9		35.6		

* Significant at .05 level.

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A Comparison of the Mean Performance of Students of PDS Trained Teachers: Within the Context of Schools and Grade Levels

The foregoing discussion examined the differences among students taught by PDS trained teachers and Non-PDS teachers. Of equal interest is to see if there are differences in the performance levels among the students of all PDS teachers. Such differences could occur due to differences between schools and grade levels. Therefore, another set of ANCOVA was conducted to draw additional conclusions about student performance on the basis of school and grade affiliations. The results of the analyses are presented in Table 9.

These differences were examined within the context of individual schools and also across grade levels. For example, one may hypothesize that PDS trained teachers return to contexts that vary in their levels of support, or that historically have been marked by strong academic performance. The first set of analysis revealed significant differences among schools and grade levels in all the three areas. Once again post-hoc procedures (LSD) were carried out to discern specific differences that are statistically significant among schools and grade levels. In the area of reading, students from Wilson Avenue significantly outperformed (53.1 NCE) students from all other schools. Significant differences also occurred in reading for Burnet Street (47.7 NCE), Dayton Street (44.2 NCE), and Hawthorne Avenue (42.4 NCE), where students from these three schools scored significantly higher than students from most of the other schools. For instance, all the three schools consistently scored higher on their 1994 Stanford reading section, than their peers from 4 other schools (Newton Street, Quitman Street, Thirteenth Avenue, and L.A. Spencer). In summary, while the best performing schools were Wilson Avenue and Burnet Street, the school with the weakest performance was L.A. Spencer (27.6 NCE). One may conclude that the staff development program was least effective for teachers from this school.

A similar pattern was also observed in the area of mathematics, with Wilson Avenue students scoring significantly higher (57.1 NCE) than students from all other schools, except Warren Avenue. Warren Avenue (52.7 NCE) and Maple Avenue (51.4 NCE) students outperformed their cohorts from most of the other schools. The next set of best performing schools in this area were Dayton Street (48.4 NCE), Hawthorne Avenue (48.9 NCE), Thirteenth Avenue (47.5 NCE), and Quitman Street (47.3 NCE). Students from Sussex Avenue and Morton Street also performed better than students from other schools. While G.W. Carver and

L.A. Spencer are the next set of schools with comparable scores, Newton Street and Burnet Street exhibit least competency in this skill area. The data suggests that for those schools that are least competitive in achievement, closer attention has to be paid to the kinds of support given to the retooled teachers, once they return to their home school.

In the area of language arts, the schools with the most successful outcomes were Maple Avenue (46.7 NCE) and Dayton Street (43.7 NCE). The scores of students from all other schools showed similar performance levels without any significant differences.

A further comparison focuses on studying the performance of all students taught by PDS teachers across the sixth, seventh, and eighth grades with the rest of the student population in that school. Table 9 shows a weighted mean score (sixth, seventh, and eighth grade students) for each of the schools in all the three areas. A cursory comparison of these weighted scores with the scores obtained for the PDS group, show that in the area of reading and mathematics, only in four instances were the mean scores for the schools, at least one NCE point higher than that of the scores of students taught by PDS trained teachers. In all other instances, the scores of the PDS trained teachers were higher than the scores for the rest of the schools. However, this number increased in the area of language arts, with six of the schools posting higher weighted scores. The above results parallel the ones obtained with regard to student performance of PDS trained teachers. Recall that the area of language arts was found to be weakest of all the three areas, with no significant differences among the performance of students of PDS trained teachers and Non-PDS teachers.

The last column of Table 9 presents the ranking of schools in the district. Ranking is computed on the basis of cumulative performance on the three basic skills areas. It is very interesting to note that the top ranking schools in the district (Wilson Avenue (8), Maple Avenue (13), and Dayton Street (24) continue to perform well when achievement of the students of the PDS teachers are evaluated. This confirms the importance of school environment. One may conclude that schools that are good to begin with receive additional benefit from staff development, which in turn tends to further strengthen their students' performance.

Table 9 also indicates student achievement of PDS trained teachers relative to grade level. In the area of reading and language arts, students from the sixth grade performed significantly better than students from the seventh and eighth grades. Differences ranged from 3 NCE points

TABLE 10

Proficiency Rates (Percentage) of Students of PDS Trained Teachers by School and Grade Level

SKILL AREA	6TH GRADE			7TH GRADE			8TH GRADE		
School	R	M	L	R	M	L	R	M	L
Maple	---	80.0	76.5	---	76.9	70.8	---	63.9	---
Morton	---	36.4	---	---	---	---	---	---	---
Newton	52.4	33.3	47.6	57.5	57.5	67.5	66.7	41.7	75.0
Quitman	39.7	62.1	60.3	42.2	66.7	28.9	---	50.7	---
Spencer	51.4	54.1	48.6	18.3	63.3	35.9	---	30.2	---
13th Ave	69.2	57.5	61.5	32.9	29.4	31.7	---	40.0	---
Warren	---	---	---	---	---	---	---	61.5	---
Wilson	83.5	42.3	53.8	88.3	95.1	---	---	67.7	---
Burnet	---	---	---	86.5	43.2	---	26.5	20.6	---
Dayton	69.7	57.6	72.7	64.3	76.9	21.4	---	52.9	---
Hawthorne	76.3	73.7	76.3	43.9	42.1	33.3	---	---	---
Sussex	---	---	---	33.3	37.5	50.0	39.3	57.1	32.1
GW Carver	---	---	---	56.7	65.9	52.2	29.2	45.0	37.5

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to 6 NCE points. In the area of mathematics, two pairwise comparisons were found to be statistically significant. Students from sixth and seventh grades performed better than students from the eighth grade. In all, relative performance of the eighth grade students appear to be the weakest among all three levels (also see Table 7 where NCE scores at this grade level is lower than that of sixth and seventh grade scores).

Proficiency Levels of Students of PDS Teachers In the Context of Schools

Overall in the area of reading, sixth and seventh grade students perform better than 8th grade students (see Table 10). Schools such as Wilson Avenue, Hawthorne Avenue, and Dayton Street post the highest percentage of students scoring above the cutoff score on the grade-appropriate reading test. Other schools' results are mixed with some schools showing higher proficiency at different grade levels. In the area of mathematics, students from Maple Avenue, Wilson Avenue, Warren Street, Quitman Street, and Dayton Street show higher proficiency levels than students from other schools. Maple Avenue and Newton Street appear to perform well on the language arts section of the Stanford test. There is also a definite trend related to grade level with 6th grade students posting higher proficiency rates than seventh or eighth grade students. This is especially true for schools such as Dayton Street, Burnet Street, Thirteenth Avenue, and Quitman Street. These results parallel the results obtained earlier about performance related to grade level affiliation. (Table 9)

From the above results, an overall conclusion that can be drawn is that the staff development program in the district does have some positive impact on student achievement. However, this impact is not universally experienced by students of all the middle grades or schools. In fact, significant differences were found only in the area of reading and mathematics, when performance of students of PDS and Non-PDS teachers were compared. This may be due to the fact that the staff development program is designed to focus on improving and retooling the skills and strategies of teachers in the areas of reading and mathematics. There is also a consistent pattern associated with grade level performance. Eighth grade students seem to exhibit the lowest performance. The professional development school may need to critically evaluate the training of 8th grade teachers to improve student performance at this grade level. Also, the retrained teachers from this grade level may require additional and continuous support after they exit the program. One has to bear in mind that this is a benchmark year, and that

students' higher order thinking skills and problem solving skills are tested through the Early Warning Test administered by the State.

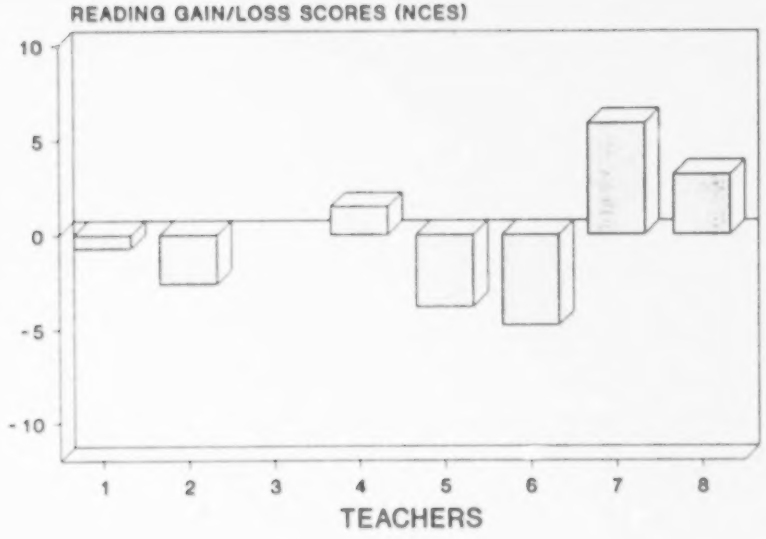
It is also evident that the better performing schools continue to perform well with the impact of staff development program, but the impact on other schools is mixed, with some benefiting from the program and others undergoing very little change. This mixed result may be alluding to the fact that there are other factors that have substantial effect on student achievement.

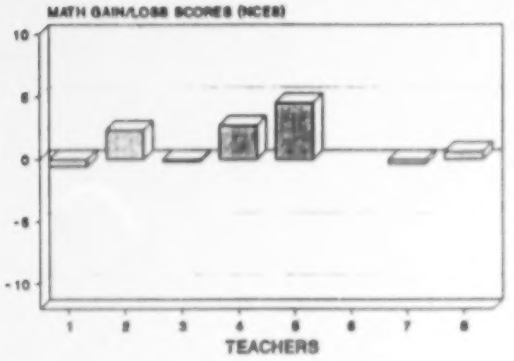
Relationship Between Effective Teaching Styles, Perceptions of Teachers, and Student Achievement

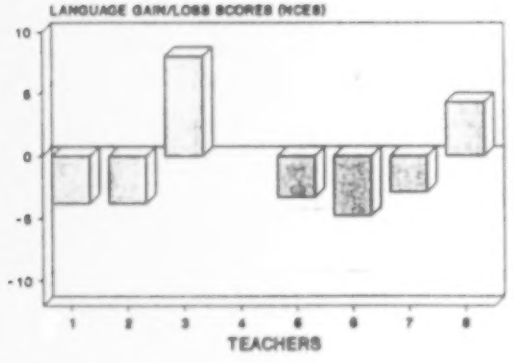
The sample for this discussion consists of students of a subgroup of eight teachers who were trained in the last cycle of 1992-1993 school year from six schools. This subgroup's teaching style was discussed in an earlier chapter. These teachers' perception of school environment before and after the training at the professional development school, was also discussed in detail in Chapter 4. Therefore, it is only fitting that an evaluation of their students' achievement in the context of school environment and teachers' instructional styles be carried out to throw light on the impact of these variables on student performance. However, due to the small sample size, powerful statistical analyses to differentiate among teaching styles and perceptions of teachers could not be carried out.

A descriptive way of analyzing this data would be to plot the differences between the pretest (1993 scores) and posttest (1994 scores) of the students of this subsample of 8 teachers in all three areas. Figure 3 shows the growth or decline in each of the areas, for each of the teacher's students. A consistent pattern is once again revealed, with performance in math being the best among the three areas, followed by reasonable increases in the area of reading. Notice that, in the area of mathematics, while 3 of the teachers' student scores showed an increase of at least one NCE point, students of all other teachers maintained their performance at the same level. Unlike in the other two areas, there were no declines posted in this area. The number of increases in the area of reading were the same as the number of declines posted, but one of the teachers' students did not show any change. In essence, one could argue that four out of five comparisons in this area were favorable. Performance in the area of language arts continues to be problematic and only 2 teachers' students performed better on their posttest. As mentioned

FIGURE 3: TRENDS IN PERFORMANCE LEVELS OF STUDENTS OF 8 PDS TRAINED TEACHERS







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earlier, the focus of the staff development program is primarily limited to reading and math and what we see may be a consequence of the emphasis of the program.

Conclusions

The general trend evident from our analysis of student outcomes is for students taught by PDS trained teachers to perform better than students taught by Non-PDS trained teachers. In some instances these differences are significant while in others only marginal. There are however exceptions to this trend. In language arts no clear difference favorable to the PDS program is detectable and at the eighth grade no consistent positive outcomes for the PDS group are to be found. We also found schools in which the Non-PDS group performed significantly better than the PDS group. However, bearing in mind that the program is still in its inceptional stages and demonstrates potential, one cannot totally abandon the program for its limited influence on student performance. Instead, using the results to understand the reasons for overall weak performance in the eighth grade and in the area of language arts, the application of appropriate measures to strengthen the program can only produce favorable results.

A consistent performance level associated with better and worst performing schools in the district, with or without input from the staff development program, shows the fundamental underlying problems of underachieving schools. These results suggest the need for continuing support from the program to teachers once they have returned to their home schools. This also clearly shows that an universal approach towards staff development may not be suitable for a district such as Newark, and the program may need to be tailored after an assessment of the needs of each school. Such efforts may not produce immediate positive results, but a constant reevaluation and commitment can definitely bear fruit in the future. With appropriate modifications the program can certainly help both teachers to grow professionally and students to learn better.

CHAPTER SIX

Conclusions and Recommendations:

The establishment of the Harold Wilson Professional Development School represents a bold attempt by the District to meaningfully restructure the way in which "in-District" opportunities for professional renewal are made available to its teaching force. Established in 1991, questions as to the relative effectiveness of the program have not been formally addressed until this study. The primary intent of the present evaluation was to explore the relative impact of the program on student outcomes, mediated by its impact first on teacher attitudes and behaviors. Such a focus as the one adopted by this evaluation is still relatively narrow.

It is extremely difficult to reduce the full complexity of this major staff development thrust to these simple outcomes. Yet, the constraints of resources and time precluded us from exploring the full range of issues surrounding the establishment and operation of the school. Issues such as the development of the Harold Wilson Middle School and its performance, the impact of exchange teachers on the visiting teachers' classrooms, the quality of the post assistance given to teachers once their training is completed at the PDS are all worth addressing if a thorough understanding of the PDS is to be obtained, and perhaps should be the focus of future research.

Not-with-standing these limitations, the results from the present evaluation do shed some light on the PDS, the possibilities for positive impact, and the mitigating factors that temper the degree to which program success is realizable across schools. In the introductory comments to this report, the observation was made on the lack of synchronization between the activities of the PDS, and attempts at changing schools as the contexts where learning and success are ultimately lodged. Specifically it was noted that the initial training offered by the PDS while in the broader sense was linked with improving the delivery of instruction and student achievement in the District, in a more narrow and concrete vein was not related to school initiatives for change. The general tenure of the research findings from all of the chapters indicate that this oversight is now an area of grave concern.

Teachers leave the PDS program, and return to home schools where the support for implementing what has been learned is minimal in some cases. The absence of support

structures after training significantly reduces the possibility of successful translation of knowledge into practice. Indeed, teacher enthusiasm wanes and the level of expressed frustration with school administrators increases. Clearly the PDS training's insularity from the wider context in which the teacher operates is likely to work against it. Rectifying this problem thus emerges as a priority. School administrators need to understand not only the focus, philosophy and underlying pedagogical structures of the PDS staff development program, but more importantly they need to understand how the program can be beneficial to their schools. The possibility is quite distinct that some administrators unfamiliar with the PDS training may view teachers attempt to introduce new learning and pedagogical strategies as aberrant behaviors. An example of this, and one frequently cited by participating teachers in this study pertains to organizing classes and conducting lessons around co-operative learning. Teachers complain that some administrators view co-operative learning as involving "too much student activity" "breakdown of order in the classroom" and "too noisy".

The findings in this study of important contextual differences among schools and teacher perceptions, attitudes and needs also raise the question as to whether or not the scope of the PDS training needs to be revisited from a conceptual standpoint. Although, teachers have a voice in determining the plan for their professional development while at the PDS, the program offerings are not sufficiently diverse to accommodate the varying levels of competencies which teachers bring. Thus a strong mathematics teacher may need to go through a slightly different training experience than a teacher with weaker mathematics skills. Simultaneously, the follow up support once teachers complete their stay should be structured around teachers' needs. Weaker teachers will need more support than stronger teachers. Teachers who experience feelings of disempowerment in their classrooms will need more comprehensive support flowing to them, than teachers with contrary feelings. In other words the PDS program should try to move away from the "one - glove fits all" approach to staff development. This evaluation did not explicitly look at the quality of the training that is offered by the PDS, but in the light of these observations PDS administrators should be encouraged to actively and on an ongoing basis reexamine their training in order to ensure that it optimally meets the needs of the District, schools and staff.

It is not apparent from the data gathered in this evaluation if teachers who have gone through the PDS training within a school are provided with planning time once they have

returned to their home schools to meet and discuss their training, and to explore ways in which they can implement what they have learnt into their classrooms. It is possible that this may occur informally, but certainly in the light of insufficient follow through on the part of the PDS staff, actively fostering collegiality among PDS trained teachers may be one way of ensuring that teachers do not disengage from the ideas or practices which have been gleaned through training.

Scripting of the nine teachers' classrooms reveal that while most teachers attempt to implement what they have learnt through the PDS, there are variations in the degree to which this is effectively done. We have in previous comments alluded to some of the constraining factors influencing teacher behaviors. However, there may be additional factors that should be considered. For example, there are specific areas of weaknesses that may be due to both the nature of the staff development training as well as teachers' capacities to deal effectively with instruction. From the scripting of teachers' lessons it became evident that teachers differed in their abilities to determine mastery criteria, successfully employ strategies to elicit higher cognitive reasoning among students, and establish classroom atmospheres that are student centered. Obviously, since these abilities constitute the nub of the training, the program administrators must find a way of addressing these problems, especially if these findings are typical of what happens after the PDS training.

In a similar vein, program administrators must try to unravel the reasons behind the differential rate of success in student outcomes for the sixth, seventh and eighth grades. Our findings suggest that of all three grade levels the eight grade is the least likely to show results in favor of PDS trained teachers. Given the limited scope of the present study it is impossible to determine what the causative factors are. One may conjecture that the interplay of several factors could be contributing to this. Certainly, program administrators may need to critically examine the content of the training offered to these teachers against the backdrop of teacher abilities to meet the curricular and assessment standards for this grade level.

Finally, from a policy perspective, approaches toward staff development in the District have to be so framed that they accommodate the needs of the various tiers of the system. Thus, they should first be tied into the District's goals and priorities for instruction. Second, they should address schools' abilities to meet these goals, and finally they should be directed towards developing the set of competencies that teachers will need to ensure student mastery of these

goals. Such an approach, as the one being advocated will minimize against the fragmentation of activities and bring about a tighter articulation between teacher retooling, school accountability and system improvement.

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APPENDIX:

Scales and Subscales from PDS Teacher Survey

APPENDIX ONE:

Scales and Sub-Scales Professional Development School Survey

Scale I: ***Professional Goals of Teachers***

1. I feel I need to explore more avenues to help students understand content areas.
2. I need to help my students build self esteem.
3. I would like to improve my knowledge of the subject matter I teach.
4. I would like to improve skills related to classroom management.
5. Teachers in this school need to work more closely together.

Inter-item correlations: .3618
Standardized Item Alpha: .7392

Scale II: ***Professional Perceptions about Students' Needs***

1. The students I teach seem to lack a strong motivation to learn.
2. The students in my classes need to develop broader interests.
3. The students I teach need help in their critical thinking abilities.
4. Most of the students I teach are not interested in learning.

Inter-item Correlations: .3382
Standardized Item Alpha: .6715

Scale III: ***Professional Expectations of Teachers***

1. I have not had adequate supports to grow professionally.
2. I believe that consistent and firm classroom discipline is an important prerequisite to learning.
3. Classroom observations are the best way to give me feedback on my teaching strategies.

Inter-item Correlations: .3691
Standardized Item Alpha: .6370

Scale IV: ***Job Satisfaction***

Inter-item Correlations: .3030
Standardized Item Alpha: .6349

Sub-Scale 1: *Teachers' Attitudes Toward Teaching*

1. I find teaching to be stressful.
2. There is a lot of pressure associated with being a teacher.
3. I feel generally enthusiastic about teaching.
4. I rarely consider leaving the teaching profession.

Inter-item Correlations: .1284
Standardized Item Alpha: .3707

Sub-Scale 2: *Satisfaction About Current Job*

1. I believe I make a difference as a teacher with my students.
2. I don't have enough planning time.
3. There is too much paperwork involved with my job.
4. I feel very frustrated with my job.
5. Sometimes I feel I am a failure as a teacher.
6. I would rather teach in my present system than elsewhere.
7. I feel that my teaching is effective.
8. I feel a great sense of pride about the work I do.

Inter-item Correlations: .1193
Standardized Item Alpha: .5200

Sub-Scale 3: *Power in Decision Making*

1. There are few opportunities for participating in decision making.
2. I feel comfortable in my relationships with administrators.
3. I have sufficient leeway to use my own ideas in teaching.

Inter-item Correlations: .1235
Standardized Item Alpha: .2971

Sub-Scale 4: *Collegiality*

1. I feel liked and respected by colleagues.
2. I rarely have feelings about being trapped in a bad situation.
3. I have many colleagues with whom I can talk about my feelings and problems.
4. I rarely feel isolated from my colleagues at work.

Inter-item Correlations: .3683
Standardized Item Alpha: .6999

Scale V: ***School Environment***

Inter-item Correlations: .5293
Standardized Item Alpha: .8490

Sub Scale 1: ***Cooperation among Colleagues***

1. I make a conscious effort to coordinate my teaching with what occurs at other grade levels.
2. Staff members support and encourage each other at this school.
3. There is a great deal of cooperative effort among staff members.
4. At the principal's initiative, teachers work together to effectively coordinate the instructional program within and between grades.
5. This school seems like a big family, everyone is close and friendly.

Inter-item Correlations: .3731
Standardized Item Alpha: .7485

Sub Scale 2: ***Support from School***

1. I have the support of the school administration in enforcing school rules.
2. Staff members are recognized for a job well done.
3. The principal requires and regularly reviews lesson plans.
4. The principal frequently communicates to individual teachers their responsibility in relation to student achievement.
5. The principal reviews and interprets test results with and for the faculty.
6. The school's administrators understand the needs of teachers.
7. Teachers in this school are provided with adequate feedback concerning their professional performance.
8. The principal makes frequent classroom observations.
9. The principal is very active in securing resources and promoting staff development for the faculty.
10. The principal uses test results to recommend modifications or changes in the instructional program.

Inter-item Correlations: .4757
Standardized Item Alpha: .9007

Sub-Scale 3: ***School Leadership***

1. There is a clear, strong, centralized instructional leadership from the principal in this school.
2. Supervision is directed at instruction.
3. The school's communication network is open to effective two-way exchanges among administrators and teachers.
4. Goals and priorities for the school are clear.
5. This school is effectively led.

Inter-item Correlations: .6995
Standardized Item Alpha: .9209

Sub-Scale 4: ***School Climate***

1. Parents are involved in this school.
2. School personnel spend adequate time communicating with parents.
3. Teachers and parents spend time working together.
4. This school is getting better.
5. Parents are well-informed of their children's progress.
6. This school is concerned about students' social and emotional development.
7. Parents are able to communicate about the running of the school.

Inter-item Correlations: .5148
Standardized Item Alpha: .8813

Sub-Scale 5: ***School Physical Environment***

1. The level of student misbehavior (e.g., noise, fighting in the halls or cafeteria) in this school interferes with my teaching.
2. I feel safe coming to and going from this school.
3. I have an adequate work space where I can work.
4. I have necessary basic materials (e.g., textbooks and supplies) for my teaching.
5. My classroom is clean.
6. My classroom has broken windows.
7. My classroom has chipped and peeling paint.

8. On a typical day, my classroom is seldom disrupted by student misbehavior.

9. I have had to spend my own money for school supplies and materials.

10. Student behavior is generally positive in this school.

11. This school is clean and orderly.

Inter-item Correlations:	.0495
Standardized Item Alpha:	.3643